

**Technology and Identity: an ethnoarchaeological study of the social  
context of traditional iron-working in northern Telangana, India**

Volume 1 of 2

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## ABSTRACT

Ethnoarchaeological research of indigenous iron-working in Africa and, more recently, in parts of Asia, has attempted to interpret past technology through the lives and memories of blacksmiths and smelters. In India, recent archaeological and historical research of iron-working and other forms of craft production has examined the social position of specialized craft producers within regional caste-structures. This thesis incorporates both these approaches to study traditional iron-working communities in northern Telangana, a region in south-central India. Anthropological theories of craft production and power are employed to provide a nuanced interpretation of the archaeometallurgical and ethnographic data from the study area.

Medieval travelogues and colonial documents attest the presence of a thriving pre-industrial iron and crucible steel-manufacturing tradition in northern Telangana. Initial archaeological and historical investigations in the region by Lowe (1989) and Jaikishan (2009) identified a significant number of sites related to early iron and crucible steel production. The Pioneering Metallurgy project of 2010 (Juleff et al., 2011) surveyed within the four districts of northern Telangana to investigate the origin and development of these technologies. Besides locating and recording archaeometallurgical evidence, the project also conducted ethno-metallurgical enquiries to record the members of rural blacksmith **communities** at work. This highlighted the potential for an in-depth ethnoarchaeological study to understand the socio-cultural context of these indigenous technologies by unraveling the lives of the descendants of iron-smelters and steel

makers of northern Telangana. This was the starting point of the present research project.

My research investigates a dynamic set of relationships between craft, people and space—physical and social. The ethnographic data for this research is collected through 63 formal and numerous informal interactions with the iron-workers of the region. These interactions and other collected data are presented in appendices. The lives of five practitioners with different specialized skills provide the entry point into this research which is presented in two-parts. After setting the background, Part A investigates the intricate relationship between indigenous smelting technologies, smelters and place. Based on interactions with older members of the Mudda Kammari (smelter) community, this study attempts to reconstruct the practices of iron-smelting from their individual and collective memory. Where possible, elderly smelters led me to the rivulets where ore was mined and showed the surviving pits for preparing charcoal, while explaining technological details. The spatial locations of these were recorded and analyzed in relation to the smelting sites and present habitations of the Mudda Kammari (smelter) communities. Apart from technological detail, their memory also provided insight into the social and economic networks in which indigenous iron-smelting operated.

The demise of indigenous iron-smelting in the first half of 20<sup>th</sup> century compelled the Mudda Kammari to adopt blacksmithing on a full-time basis. As a result they lost their distinct smelter-identity. A host of specialist iron-working groups like the scissors-smiths, sword-smiths and firearm makers in the area also lost their specialized skills and distinct identities faced with competition from industrial products and government prohibition on

the domestic weapon manufacturing industries from the 1950s. All of these groups were obliged to take up manufacturing agricultural products, and therefore, became homogenized as Kammari (blacksmiths). Lopsided agrarian development, marketization of harvests and recent mechanization of agriculture have ruptured the traditional relations of exchange between the Kammari and the agrarian community. This has significantly reduced the demand for their services, and resulted in displacement of their craft and lives. Consequently, the identity and position that the Kammari enjoyed in rural social space and reinforced through cult performance has degenerated. This led to a further homogenization of artisan identities, supported by a new eclectic identity narrative, which replaced the older, individual craft-community focused identities. Part B of this research deals with this homogenization process in detail. It interrogates the relationship between the decline in craft and the evolution of artisan identity. Based on ethnographic fieldwork and archival studies, this section examines how identities of iron-working communities in northern Telangana are reconstituted and articulated over time with the enfeeblement of their craft.

In the final section of the thesis I bring the diverse data together to form a nuanced understanding of the social, cultural and economic context of iron working in northern Telangana. Based on the complexity of iron-worker identity in northern Telangana, this section cautions against drawing straightforward ethnographic analogies to study the archaeological record. I conclude by proposing how this research can benefit future ethnoarchaeological research of craft production and in studying traditional craft and craftsmen in a growing market economy.

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### **NOTE ON TRANSLITERATION**

Since I have not formally learnt the Telugu language, the transliterations used in this thesis are based on sound similarities. I have tried to approximate how the words sound as closely as possible, using English. This is also done for the ease of the readers not familiar with Indian languages.

### **ABBREVIATIONS**

**UEZ:** Urban Economic Zone

**REZ:** Rural Economic Zone

**FN:** I mentioned this within brackets to indicate that the information comes not from the formal interviews presented in Appendix 1, but from informal conversations recorded in my un-typed field notebooks.

## CHAPTER 1

### THE ARCHAEOLOGY AND ANTHROPOLOGY OF IRON IN SOUTH ASIA

#### 1.1 Introduction

The objective of this chapter is to introduce and situate the present research within broader themes of the anthropology and archaeology of iron-working in South Asia. I will approach it via four interconnected themes. Firstly, I will discuss the broad range of historical and archaeological literature that addresses the question of the origin and development of iron technology in India and its socio-political impact on Early Historic society of India, which has been broadly termed as the “Iron Age”, in itself a highly contested concept. This literature remains a central debate in the historical and archaeological discourse of the sub-continent. I will explicate the principal discursive themes of this debate. After setting out the discourse on the origin and early impact of ferrous technology within the sub-continent, the next theme will trace the economic role played by Indian iron and steel in global markets in the context of the Early Historic and Medieval period. This will be achieved through an overview of the Greco-Roman documents mentioning Indian iron and steel and medieval Arabic and Persian treatises on weapons and metals by al-Kindi, al-Tarsusi and al-Biruni. The third theme will extend this overview into the 17<sup>th</sup> and 18<sup>th</sup> centuries. This period is characterised by an increase in scientific interest of the West in the nature and properties of Indian steel, with the expansion of European commercial enterprises in South Asia. I will give a brief introduction on various scientific studies conducted on the samples of high-carbon Indian steel during this period, an area of study which brought the pre-eminence of

Indian iron and steel to the attention of the West. Finally, I will turn to a limited number of anthropological studies conducted on iron-working communities in the Indian sub-continent since the early 20<sup>th</sup> century. Here, I will start my discussion with the colonial “Castes and Tribes” studies by Thurston and Rangachari (1975 [1907]:III) and Hassan (1920), before moving on to more in depth anthropological studies of the blacksmith communities (Coomaraswamy, 1909; Brouwer, 1995) and tribal iron-smelting groups of central India (Elwin, 1941; Leuva, 1963; Mishra, 2003). The final section of this chapter will take a critical view of these above studies. I will elucidate how the present thesis seeks to complement these studies by addressing the gaps in our knowledge of the technology, society and cultural dynamics of iron-working in South Asia, through an ethnoarchaeological study of iron-working groups of northern Telangana in south-central India.

## **1.2 The study of the origin and early impact of iron in India**

Studies of the origin and early impact of iron-technology in South Asia have primarily contributed to theoretical debates through two interconnected themes: the diffusion versus autochthonous origin of iron production and the impact of ferrous metallurgy on early social development in the Indian sub-continent. A large body of academic literature has been produced contributing to both of the above themes. In order to efficiently navigate through this voluminous literature, I have divided the discussion into four sub-sections.



Figure 1.1 Showing the 16 Mahajanapadas and the major urban centres in the Gangetic valley. These early Iron Age polities and their associated urbanization are attributed to the impact of iron-technology. (Source: [www.mapsofindia.com](http://www.mapsofindia.com))



### 1.2.1 Historical and archaeological research on the emergence and impact of iron-technology in the Indian sub-continent since 6<sup>th</sup> century BC

A majority of early research on the emergence and impact of iron-technology in the Indian sub-continent has come from historians and archaeologists studying socio-economic and cultural transformations in the Early Historic period in India (c. 6<sup>th</sup> century BC onwards). Archaeologists D.H. Gordon (1950) and Sir Mortimer Wheeler (1959) advocated that iron was only introduced in India around 500 BC from Persia. Based on then available archaeological evidence and classical Greek and Sanskrit literature, they traced a gradual diffusion of iron technology from West Asia into India, via Gandhara (Kandahar) and Taxila (Fig. 1.1) into the Gangetic valley and eventually spreading into peninsular **India and the sub-continent**. A counter-narrative of the diffusionist discourse emerged out of nationalist historiography in order to challenge the ‘colonial’ views advocated by Gordon and Wheeler. The debate has intensified since the 1960s with major academic contributions on both sides from various historians and archaeologists.

Kosambi (2006, 1963) was the first major historian to challenge the diffusionist model in the early 1960s. Influenced by Gordon Childe’s idea of iron being a liberating force in shaping socio-political formations at the beginning of Iron Age, Kosambi attributed a transformative role to iron technology in Early Historic India, and in the process triggered a second major debate on the early impact of iron-technology. The debate has since been enriched by contributions from different historians and archaeologists accepting or rejecting iron-technology as being a primary catalyst for social and political formations in the Early Historic period. Based on archaeological evidence of iron

artefact-bearing levels in excavations and on literary evidence from classical Sanskrit works, Kosambi refuted the diffusionist narrative of iron technology and supported an autochthonous and early (8<sup>th</sup> century BC) emergence of iron technology in the Gangetic valley. He argued that the archaeological record of this period is characterised by the use of iron implements for agriculture, which marked a major transformation from the Chalcolithic period. Kosambi proposed that the abundant availability of iron ore in Eastern India aided the early development of iron-smelting technology. This resulted in the introduction of iron implements which helped to bring more areas under cultivation as efficient and rapid forest clearance was possible. The expansion of the agrarian base and establishment of new settlements in freshly-cleared forest tracts along the Gangetic valley generated more agricultural surplus, leading to a stable agrarian economic foundation and social stratification based on accessibility of agricultural resources. Trade and commerce gained momentum and a strong economy led to the rise of polities around 500 BC (e.g. Kashi and Kosala) around early urban centres in the Gangetic valley (Fig. 1.1). Kosambi argued that Jainism and Buddhism provided the ideological base to this materially stable society and attributed the rise of major political powers, like Magadha, to their control over iron ore sources in north India.

Sharma (1965, 2006) improved on the thesis of Kosambi while explaining the material backgrounds for the emergence of Buddhism in the 6<sup>th</sup> century BC. He suggested that a stable agrarian base and urbanisation resulted in an efflorescence of commerce (local and long-distance), which in turn had further reinforced the material foundation of the society. Abundance and differential access to resources challenged the existing social hierarchies based on the Vedic *varna* scheme. This in turn led to a radical

reorganization of society established on economic inequalities. Control over agricultural surplus and expansion of trade networks increased the power, stature and importance of land-holding and commercial communities in the polities of the Gangetic valley. Buddhism and Jainism, with their message of peace and egalitarian society, provided the philosophical narrative for these affluent communities to break out of the rigid Vedic *varna* system of the period.

Romila Thapar (2003, 1978) agreed with Sharma about the important role of iron-technology. However, she favoured a more cautious and broad-based approach incorporating linguistics and archaeology more diligently into her historical analysis. She questioned the idea that iron was an autonomous agent of change and posited that iron technology served as one among many important enabling factors in the socio-cultural changes that were occurring at the onset of the Early Historic period. She approached the subject of emergence and spread of iron-technology in the context of broader historical processes and explored the possibility of the simultaneous diffusion of ferrous metallurgy and Indo-Aryan languages in iron-using agrarian-based villages. She argued that the beginning of iron-production did not necessarily entail a radical transformation in the tool repertoire by the introduction of new implements, but it was more of a qualitative improvement over the existing copper tools. For example, Thapar argues that although the replacement of hafted copper axes of the chalcolithic period by iron socketed axes did not add new types of implements in the tool repertoire, the latter enabled a more efficient clearance of the dense forests of the Gangetic valley and increased the production of rice, where uninterrupted weeding was necessary (Sahu,

2006:5). According to Sahu (2006:5), the copper tools used earlier, were prone to lose their sharpness easily, and hence could not be efficient for uninterrupted use.

Thapar (2003) also explored the relationship between iron technology, specialized craft production and the use of agricultural labour and improved trade, which together played their parts in triggering a 'second urbanization' of north India during 7<sup>th</sup> and 6<sup>th</sup> centuries BC ('first urbanization' referring to the Indus Valley Civilization) .

Ghosh (2006, 1964) also critiqued this perception of the transformative role of iron technology. He was of the opinion that although iron played an important role in social and cultural transformations, its effects and diffusion were more gradual than suggested. Based on literary evidence he argued that forest clearance by fire and copper or bronze tools would have similar effects, although at a slower pace, and therefore there was no urgent need for adoption of new technology. He argued that the viability of a new technology can only be determined by the societies which adopt and either gradually incorporate them or refuse them. Based on this he concluded that iron technology did not necessarily bring about rapid urbanization across the sub-continent during the Early Historic period.

Pleiner (1971) problematized the beginning of the Iron Age in India by questioning the theory of autochthonous development of iron production. According to him proximity to the iron-ore resources would not necessarily imply access to the technological knowledge required for smelting the ore. Pleiner suggested that the knowledge of iron-smelting technology diffused from West Asia into the Gangetic valley, which enabled a full-scale exploitation of the iron-ore sources in the region. He proposed that iron was

incorporated in the everyday lives of people at a slow pace, and suggested that this process may have taken a few centuries. Echoing Pleiner, Nihar Ranjan Ray (1978) also adopted a cautious approach in terms of overestimating the immediate impact of iron technology in the Early Historic society of the Gangetic valley. He showed that the evidence from NBPW (Northern Black Polished Ware) levels, which coincided with the emergence of the 16 *Mahajanapadas* (Fig. 1.1), do not support a large-scale use of iron implements beyond weaponry. Based on this Ray concluded that iron implements might have entered in a major way in Indian society only around the 4<sup>th</sup> century BC which triggered the social transformations culminating in the Maurya period ( 322-185 BC).

Chakrabarti (1973, 1975, 1977, 1979) and Chakrabarti and Lahiri (1994) addressed this issue in a series of publications in which he challenged the liberating effect of iron technology. He pointed out that agricultural development and the formation of a relatively stable agrarian base pre-dated the advent of iron technology in many parts of the sub-continent, starting from Neolithic-Chalcolithic horizons. By comparing Chalcolithic and iron using cultures he showed that there is no significant change between the chalcolithic and the Iron Age in terms of material culture. The introduction of new crops did not accompany the beginning of iron use in most parts of India. He argued that if the antiquity of iron has been pushed back to 1000 B.C. based on archaeological records, then this would mean that iron technology did not immediately bring about urbanization which could only be discerned from the 7<sup>th</sup> century BC. Hence the incorporation of iron in society and transition from the Chalcolithic to the Iron Age was more gradual. Chakrabarti, however, agreed that the use of iron implements for

agriculture might have helped in a greater stabilization of the agrarian base and proliferation of rural settlements.

Lal (1997), based on his archaeological survey and excavation in the Deccan adopting a Site Catchment Analysis methodology, attempted to work out the land use patterns and population density of the PGW (Painted Grey Ware: 1200-600 BC) and the succeeding NBPW levels. He argued that the need for the overwhelming use of iron for an agrarian economy is a myth and the habitations at these levels were highly dispersed and the population in each settlement was around 500 people, hence the food requirement was not as high as earlier estimated. However, he primarily based his analysis on the data collected from surface reconnaissance which cannot be taken as representative of Early Historic population density. Also, while estimating the amount of agricultural production required by each village, Lal's calculation assumed a strictly subsistence-level production and ignored the possibility of the production of surplus (Sahu, 2006).

Erdosy (1983, 1993, 1985, 1988, 1995) and Coningham (1997, 1995) questioned the idea of technological determinism of iron in social change and urbanization. They were of the opinion that the process of urbanization was well on its course before the use of iron tools became largely democratized. Therefore, iron usage could be an effect of urbanization and social stratification rather than a cause of it.

While the autochthonous origins of iron technology in the Indian sub-continent has been widely supported by a majority of the above scholars, the nature of its immediate impact on the society and economy of the Gangetic valley remains a highly contested domain.

Early scholars like Kosambi and Sharma advocated a greater role of iron technology in triggering the socio-economic and cultural transformations in the Gangetic valley during the 7<sup>th</sup>-6<sup>th</sup> century BC. However, others (esp. Thapar, Chakrabarti and Ray), had more cautiously argued that iron technology was one among a host of other important factors that brought about the transformations in this period and led to the Second Urbanization in the Gangetic valley.

### **1.2.2 Radiocarbon dates and technological studies for the beginning of iron technology**

#### ***Radiocarbon dates***

Radiocarbon dates from iron-bearing levels in Early Historic sites in the Gangetic valley and in the megalithic burial contexts of peninsular India have constantly pushed the beginnings of iron production to the second millennium BC (Table 1.1). This, in turn, has strengthened the argument in favour of autochthonous development of iron-smelting technology in South Asia. A 2<sup>nd</sup> millennium BC date for the emergence of iron production also validates the gradual-impact argument discussed above.

Based on pottery classifications and radiocarbon dates from several archaeological sites in the Gangetic valley, Tandon (1967) and Agrawal (2006) argued that although iron started to appear towards the end of Painted Grey Ware (PGW) levels (*circa* 1200-600 BC) in the archaeological record, an “Iron Age” could only said to have started with the intensification of iron usage in the succeeding NBPW phase (*circa* 700-200 BC) when easily smelt-able iron ores became accessible in Bihar around the early 7<sup>th</sup>

century BC. Agrawal (2006) was of opinion that iron was not merely a superior alternative to copper and bronze implements, it also served as a cheap and more accessible alternative.

Earlier radiocarbon dates for early iron bearing levels (Table 1.1) for the Gangetic valley from Atranjikhhera, Kusambi and Jakhera (Fig. 1.2) (Subrahmanyam, 1964, Chakrabarti, 1977, Ray and Chakrabarti, 1975, Agrawal, 1983) and recent dates from Raja Nala-katila, Malhar, Daudupur, Lahurdewa and Jhusi (Tiwari, 2003) all point to a late 2<sup>nd</sup>-early 1<sup>st</sup> millennium BC beginning for iron use. For South India, megalithic contexts with iron implements in Komaranahalli, Veerapuram, Ramapuram provided radiocarbon dates between 16<sup>th</sup> and 12<sup>th</sup> century BC (Tiwari, 2003) (Table 1.1).

### ***Archaeometallurgical analyses***

A number of metallurgical analyses of iron artefacts retrieved from various sites of North and South India has been conducted to discern the compositional properties and the technology involved in the production of these artefacts. Based on the analysis of slags and metals from several in the Gangetic valley, Tripathi (2006, 1973, 1998, 1990) has argued in favour of an indigenous origin for iron smelting. Based on laboratory analysis of early iron implements (c. 11<sup>th</sup>-10<sup>th</sup> century B.), she posited that early use of iron started in India through the exploitation of meteoric iron as evidenced by the Widmanstätten microstructural pattern in these early iron tools. It was probably very gradually that people could identify iron ores and 'invented' smelting after protracted trial and error (Tripathi, 1973, 1998, 1990). However, more in-depth



*Table 1.1 Radiocarbon and TL dates from early iron-bearing levels in some sites (after Tiwari, 2003)*

Site (State)	Date BP	Date calBC
Atranjikhhera (UP)	2890 + 110 ( $^{14}\text{C}$ ) 1155 + 110 ( $^{14}\text{C}$ )	Ralph (using C-14 calibration with the help of dendrochronology as devised by Dr. Elizabeth K. Ralph)
Hallur (Karnataka)	2970 + 105 ( $^{14}\text{C}$ ) 2820 + 100 ( $^{14}\text{C}$ )	1385 – 1050 1125 – 825
Komaranhalli (Karnataka)	3300 + 140 (TL) 3360 + 300 (TL) 3180 + 280 (TL) 3110 + 500 (TL) 3420 + 290 (TL)	1320 + 400 1380 + 300 1200 + 280 1130 + 500 1440 + 290
Veerapuram (Seemandhra)	2930 + 140 ( $^{14}\text{C}$ ) 2890 + 140 ( $^{14}\text{C}$ ) 3210 + 140 ( $^{14}\text{C}$ )	1374 (1186, 1183, 1128) 921 1293 (1047) 921 1679 (1493, 1476, 1458) 1319
Ramapuram (Seemandhra)	3240 + 110 ( $^{14}\text{C}$ ) 3280 + 110 ( $^{14}\text{C}$ )	1679 (1517) 1409 1687 (1524) 1432
Adarn (Maharashtra)	2940 + 160 ( $^{14}\text{C}$ )  3080 + 120 ( $^{14}\text{C}$ ) 2820 + 100 ( $^{14}\text{C}$ )	1393 (1205, 1205, 1188, 1181, 1149, 1144, 1129) 917  1490 (1381, 1334, 1321) 1131 1185 (973, 956, 941) 834



Figure 1.2 Showing some sites mentioned in the text where early evidence of iron production were recorded (after Possehl and Gullapalli, 1999)

research in terms of use of meteoric iron in the Indian context is required to understand the gradual development of iron-technology in the sub-continent.

Joshi (Gullapalli, 2009), Munshi and Sarin (1970), Agrawal et al. (1983), Nagarajao (1974) conducted meticulous metallurgical and metallographic examination of iron artefacts from various megalithic sites like Mahurjhari, Takalghat, Khapa, Tadakanahalli, Komaranahalli, Hallur etc. to understand the iron-smelting technology prevalent in the Early Historic megalithic period in South India. Athavale (1955) and Hegde (1973) conducted metallographic analysis of iron implements like axes and hoes in Prakash (Maharashtra and Dhatwa (Gujarat) respectively. De and Chattopadhyay (1989) and Ghosh et al. (1987) analysed iron artefacts from Hatigara, Dhuliapur and Kakrajhar, the early historic sites in West Bengal in Eastern India. Agrawal (1983) studied four iron tools from Atranjikhhera in the Gangetic valley and identified evidences of carburisation in them. Metallographic analyses of high carbon crucible steel from Mel-Siruvalur and Kodumanal in South India are conducted by Srinivasan et al. (2007, 2009), Rajan (1998, 1996) and Sasisekaran and Raghunatha Rao (1999). For northern Telangana, the study area of the present research, microstructural analyses of crucible steel samples collected from the last of the crucible steel manufacturers were conducted by Balasubhramaniam et al. (2007) and Kumar et al. (2011). These various metallurgical and metallographic analyses of iron artefacts from Early Historic archaeological contexts point to the availability of different kinds of iron and highlight the gradual improvement in forging and quenching techniques as the iron-workers became more familiar with the metal and started experimenting with it.

### 1.2.3 Early iron production in peninsular India and Sri Lanka

The autochthonous emergence of iron-technology in the Indian sub-continent has been effectively established by Chakrabarti (1973, 1975), Possehl and Gullapalli (1999), Gullapalli (2009) and Tripathi (1973, 1998, 1990). However, the diffusion debate has been renewed in research on early iron production in peninsular India and Sri Lanka. Gullapalli (2009:440) has adequately summarised that archaeologists (e.g. Nagarajaro, 1974, Sastry, 2000) excavating megalithic Iron Age sites like Hallur and Padigutta advocated the ‘arrival’ of iron-technology from the Gangetic valley with the ‘newly arrived iron age folk’ in South India. This perception is an extension of the Wheelerian model of diffusion of iron-technology from West Asia into India, with the ‘advent’ of the Aryans. According this model, iron-technology has penetrated in peninsular India and later, into Sri Lanka with the expansion of Aryan culture in the south.

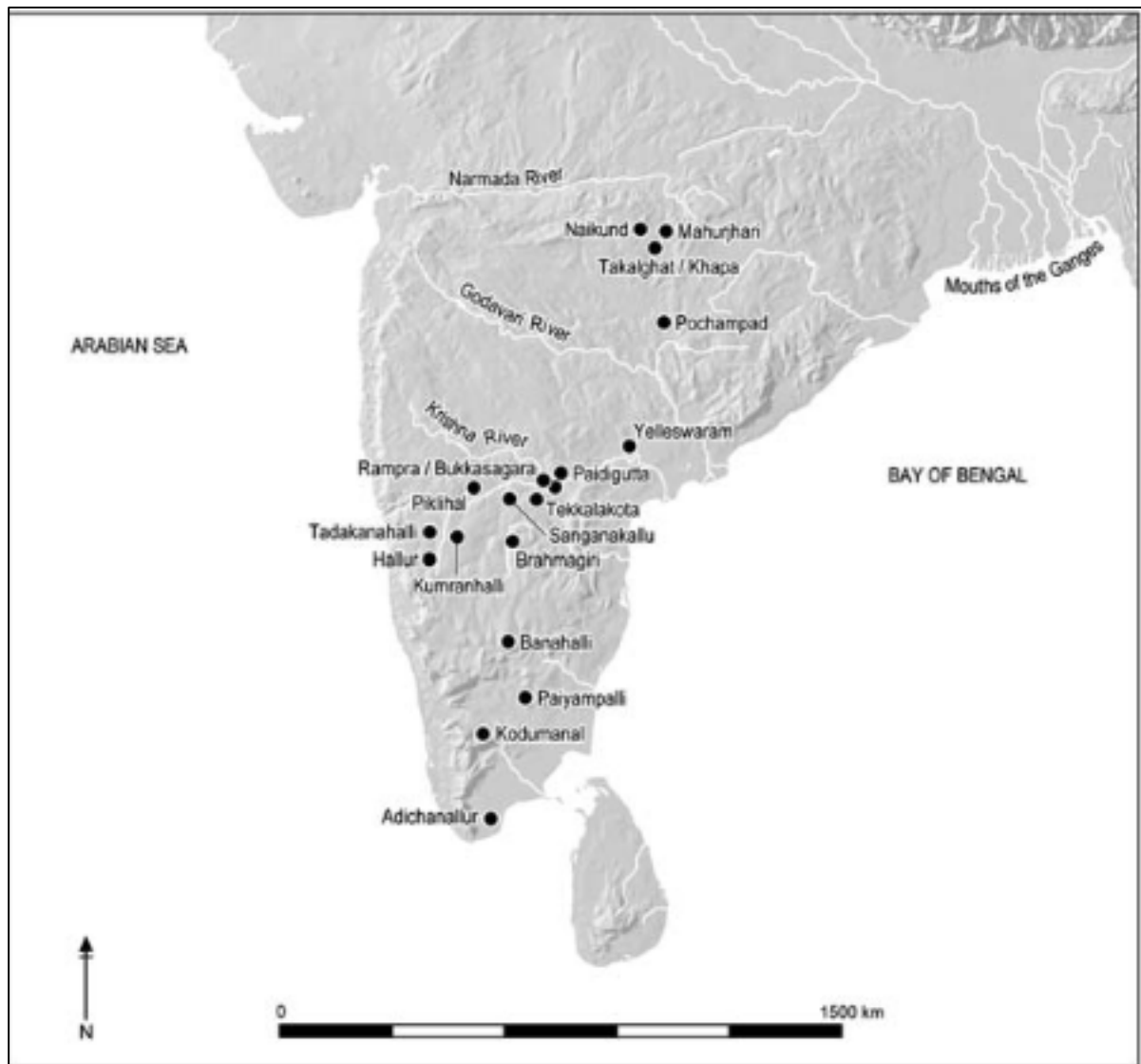
#### ***South India***

This dominant diffusion narrative has been adequately challenged by Possehl and Gullapalli (1999), Gullapalli (2009) for South India, Kennedy (2002) for South India and Sri Lanka. Based on a series of radiocarbon dates obtained from various early Iron Age sites in North and South India (Table 1.1), Gullapalli (2009) showed that early Iron Age levels in the South Indian sites like Hallur (1385-1050 cal. BC), Veerapuram (1679-1319 cal. BC) and Ramapuram (1687-1432 cal. BC) either correlated with or pre-date the available radiocarbon dates for sites in the North.

She argued that these early dates from South India “therefore render problematic diffusionary models that hypothesized overland introduction of iron into South Asia from the Iranian plateau and which would indicate that earliest iron be found in the northern subcontinent” (Gullapalli, 2009:441). Kennedy (2002, 1978) examined human skeletal remains from the Iron Age megalithic burial contexts of South India and Sri Lanka. His research showed that there is ample evidence of clear phenotypic variations in the skeletal remains of the megalithic burials. According to Kennedy, the lack of homogeneity in skeletal remains is a clear marker that disproves a “catastrophic and sudden” population replacement in South India during the Iron Age, by a new group of people who had also brought the technological knowledge of iron-smelting with them from the north (Kennedy, 2002:123).

### ***Sri Lanka***

Deraniyagala (1996, 1992) and Coningham et al. (1996) excavated the citadel of Anuradhapura in Sri Lanka. Based on radiometric dating of charcoal from different levels at Anuradhapura, Deraniyagala (1992:709) placed Early Iron Age in Sri Lanka in a period between c. 900-600 BC. Based on the archaeological evidence from this context in Anuradhapura, he pointed out that from c. 900 BC onwards, stone tools were predominantly replaced by iron implements (Deraniyagala, 1992:709). Slag from iron-smelting was also discovered in the protohistoric context at Aligala, in Sigiriya, and has been dated to 998-848 BC,



*Figure 1.3 Map showing sites in peninsular India with evidence of early iron-working (Gullapalli, 2009)*

which also complements the dates from Anuradhapura (Juleff, 1998:14) . An iron-smelting site was also excavated at Dehigaha-ala-kanda near Sigiriya (Forenius and Solangaarachchi, 1994). Deraniyagala (1996, 1992) suggested that some early Iron Age settlements in the Anuradhapura area might date back to c. 1200 BC, thus corroborating with early Iron Age horizons in peninsular India. Therefore, a first millennium BC date for Sri Lankan iron might also add force to the theory of autochthonous beginnings of iron-technology in South India and Sri Lanka.

Juleff's (1996, 1998) pioneering archaeometallurgical study of iron-smelting and crucible steel making in the Samanalawewa region of the central Sri Lankan highlands evinced substantial evidence of early iron and steel production (see below). Radiocarbon dating of charcoal samples from an excavated horse-shoe shaped furnace provided a series of dates between 401 cal. BC-109 cal. AD, the earliest dates for iron production contexts at Samanalawewa (Juleff, 1998:98-99, 2009:563).

#### **1.2.4 Archaeological evidence of iron smelting, steel production and blacksmithing**

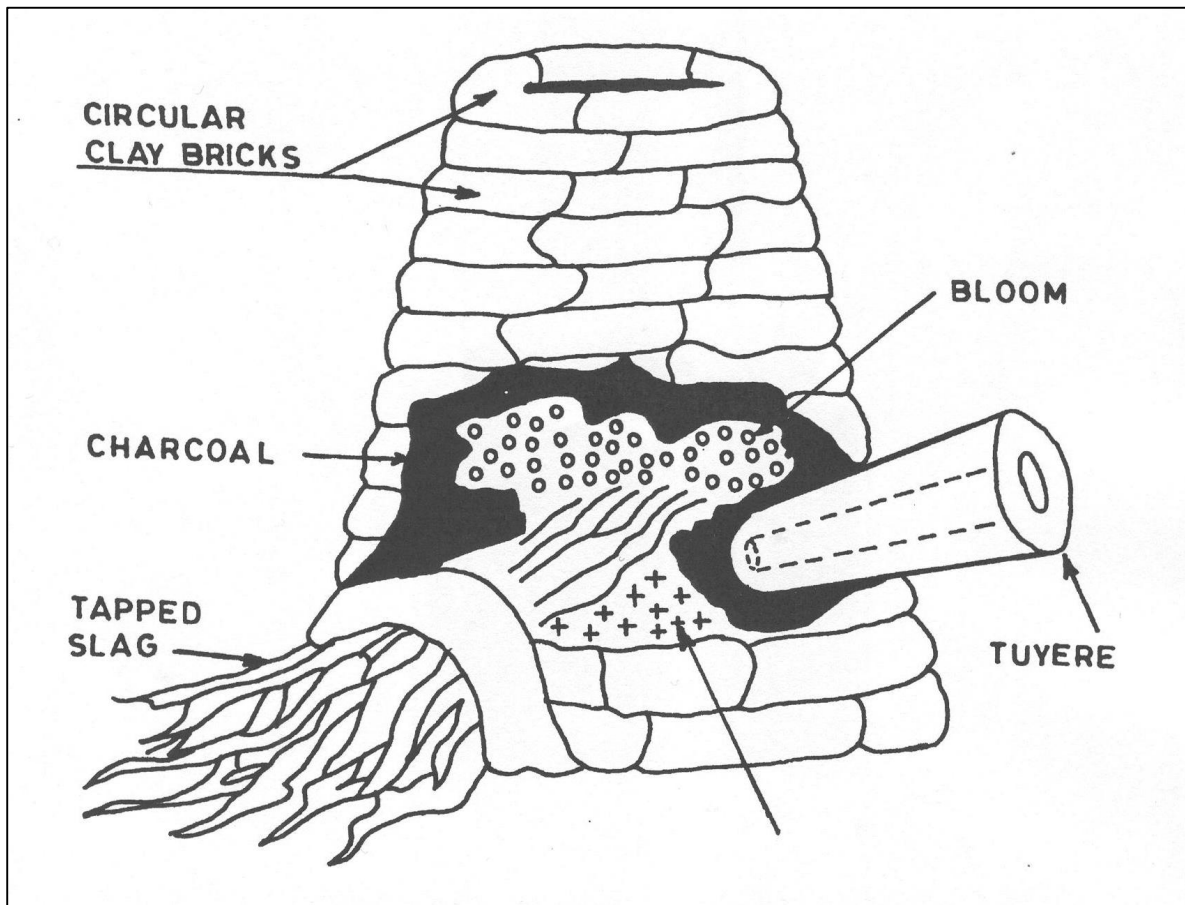
Archaeological evidence of early iron production is sparse in the Indian sub-continent. Although the presence of slag in the archaeological record provides the most direct evidence to iron-smelting, only a few smelting furnaces, or blacksmith workshops have been identified. But these offer us valuable insights into technological choices and styles adopted by early iron-workers, and their gradual evolution.

### ***Naikund, Central India***

The best recorded evidence of early iron-smelting in India comes from the megalithic site of Naikund (c. 6<sup>th</sup>-4<sup>th</sup> century BC) in the Vidarbha region of central India (Deo and Jamkhedkar, 1982). An iron smelting furnace located slightly away from the main habitation area was discovered through a three-probe resistivity survey (Gogte, 1981, Gogte et al., 1982). The centre of the area offering greater resistivity was excavated by a 5 X 4 m trench to reveal the remains of a circular clay iron-smelting furnace (Fig. 1.4) (Gogte, 1981:213-214). The furnace was constructed by circular clay bricks and based on the evidence Gogte (1981:214-215) suggested that the diameter and the height of the furnace was 30 cm and 25 cm respectively. It was a slag-tapping furnace with a hole provided in the bottom to channel the slag out. Two vitrified clay tuyeres of 16 cm in length and 2.5 cm and 3.6 cm in diameter respectively, were found in the trench adjacent to the furnace in a broken condition. In the surrounding context of the furnace, more than 40 kg of slag was collected (Gogte, 1981:215).

The study suggested that the iron-ore used for smelting was locally obtained from a “rubble in a *nala* [narrow stream]”, 1 km southeast of the smelting site (Gogte et al., 1982:68). Gogte et al. (1982:68) suggested that since there is no large iron-ore deposit nearby, the megalithic habitation at Naikund must have exploited iron-ore from this local stream as and when required. As a part of the chemical analysis, Gogte et al. (1982:71) attempted to determine the production efficiency of the excavated furnace. They estimated that for every kilogram of iron-ore, the furnace was capable of producing 350 g of pure iron, while 490 g were lost in slag.





*Figure 1.4 Reconstruction of the iron-smelting furnace excavated at Naikund (after Gogte, 1981)*

Therefore, they arrived at the conclusion that the excavated furnace was able to smelt 10-12 kg of iron-ore at a time and produced 3.0-4.2 kg of pure iron (Gogte et al., 1982:71).

### ***Atranjikhhera, Gangetic North India***

Possehl and Gullapalli (1999:164) suggested that the “fire pit” identified by Gaur (1983:129) at Atranjikhhera’s PGW phase might actually be a smithing furnace. The presence of an iron tong, remnants of slag, and finished iron artifacts in the immediate

context of the hearth suggests its possible use as a smithing area (Possehl and Gullapalli, 1999:164).

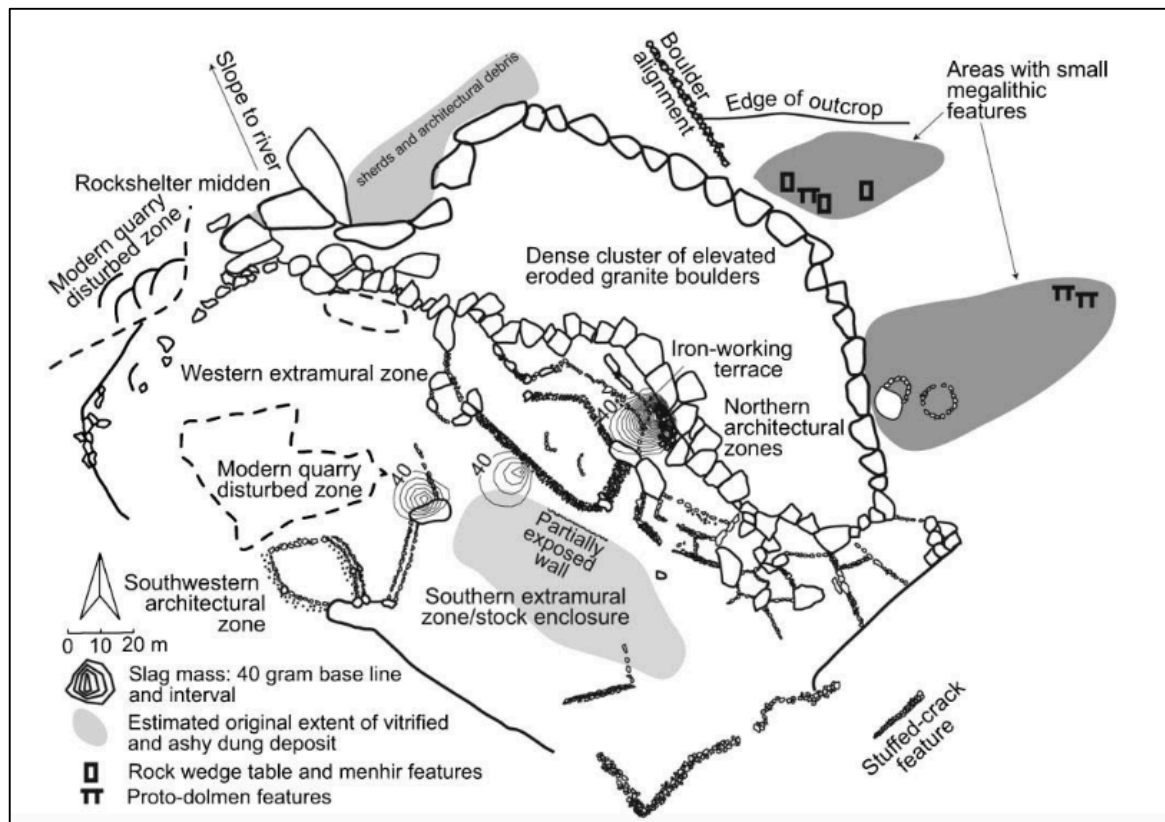
### ***Kodumanal, South India***

Excavations in the 3<sup>rd</sup> century BC habitation site at Kodumanal in Tamil Nadu has revealed large-scale production of gem and iron and steel (1998, 1996). Evidence of iron-smelting and subsequent steel production is found concentrated in two distinct clusters, 300 m apart, in northern and southern edge of the habitation mound (Sasisekaran and Rao, 1999:265). The circular base of a bowl-shaped furnace, 115 cm in diameter, was excavated in the southern cluster. Iron-slag, a granite slab, remains of a vitrified furnace wall and vitrified tuyere pieces of 15 cm in length and 6 cm in thickness conclusively suggested the use of the furnace to smelt iron-ore (Sasisekaran and Rao, 1999:265). In the northern cluster, a large oval shaped furnace, surrounded by 12 small furnaces were excavated. Rajan (1998, 1996) suggested that these were used to manufacture crucible steel through natural draught. However, the claims of Rajan (1998, 1996), Sasisekaran and Rao (1999) and Sasisekaran (2002) that the steel produced in Kodumanal was the legendary high-carbon *Wootz* steel, does not have enough corroborative evidence (Juleff, 1998).

### ***Bukkasagara, South India***

Peter Johansen (2014:257) has recently reported the earliest iron-smithing facility in Bukkasagara (Fig. 1.5) of northern Karnataka. The small iron-smithy that was excavated in the early iron-age context of the region provided a radiocarbon date between c. 1300-

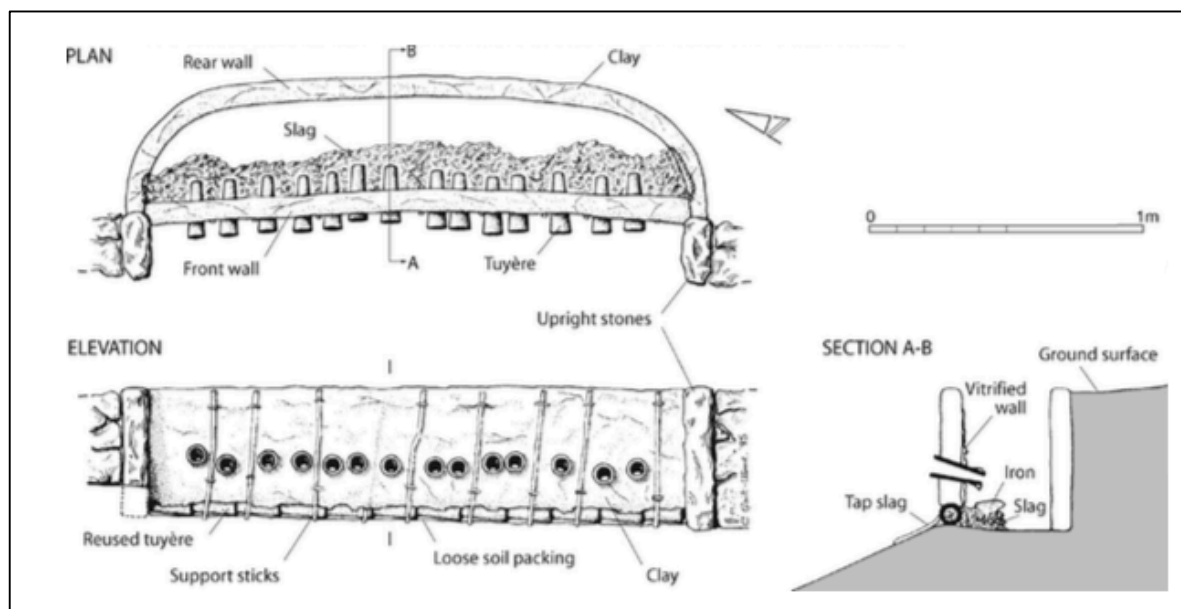
1000 BC. This find is a part of a larger research project, the Early Historic Landscapes of the Tungabhadra Corridor (EHLTC), which conducted systematic pedestrian survey in a 100 km<sup>2</sup> area and identified several iron-smelting and smithing sites in the region (Johansen, 2014, Srinivasan et al., 2009). Based on the spatial location of the smelting and smithing sites, Johansen (2014:271) suggested that virtually every Iron Age settlement, including rock shelters, bear evidence of blacksmithing. Smelting, on the other hand, is only identified at one settlement and was thought to be more specialized practice. Johansen (2014) suggests that both smithing and smelting in these early Iron Age pastoral societies were most likely to have been practiced by part-time specialists.



*Figure 1.5 Site map of Bukkasagara with the distribution of ferrous slag from surface collection (Johansen, 2014)*

### ***Samanalawewa, Sri Lanka***

Comparatively more iron and steel production contexts were excavated and published in Sri Lanka (Juleff, 2009:563-66). Juleff's (1996, 1998) archaeometallurgical survey in Samanalawewa (see 1.2.3) surveyed a 78 km<sup>2</sup> area and identified a total of 123 primary production sites and two distinct smelting technologies. Seventy-seven of these sites were related to a single type of technology labeled "west-facing Series" by Juleff (1998:99). One of the larger sites



*Figure 1.6 Reconstructed wind-powered furnace used in the smelting trials of 1994 at Samanalawewa, Sri Lanka (Juleff, 2009)*

was excavated in 1990-1, and 41 individual furnace structures were identified. All the furnaces were characterized by their strong hilltop setting and are of uniform design "that comprised a two-part structure consisting of a permanent curving back wall of clay constructed into a shallow cut and a temporary, single smelt, front wall connecting the two upright stones" (Fig. 1.6) (Juleff, 2009:559-60). The production was on an industrial

scale, and smelting of ore was induced through natural draught of strong monsoon winds (Juleff, 1998:99). This distinct west-facing technology radiocarbon dated between 7<sup>th</sup> to 11<sup>th</sup> centuries AD, has not been recorded anywhere in Sri Lanka or Asia (Juleff, 2009:538). The west-facing technology was an advanced stage in the evolutionary process of natural draft iron-smelting in Sri Lanka. The most important evidence in the area comes from the furnace excavated at Kosgama in the Samanlawewa area and also the iron-smelting site of Dehigaha-ala-kanda, both of which provided an early 4<sup>th</sup> century BC date of iron smelting in the region (Juleff, 2009:563-64).

### **1.2.5 Discussion**

A majority of historical and archaeological research on early iron production in the Indian sub-continent has focussed on four interconnected themes. Firstly, the antiquity of the introduction of iron technology and its diffusion throughout the sub-continent i.e., whether there is a clear diffusion pattern from north India to the southern peninsula and beyond into Sri Lanka, or there were different nodes around the sub-continent where the technology has developed independently. Secondly, the transformative role (or negation of it) and nature of impact (immediate versus gradual) of iron-technology on the social and political processes since its inception and incorporation into the daily lives of people. Thirdly, attempts to understand and reconstruct past technology of iron-smelting based on the archaeological remains of furnaces and other evidence of production. Finally, the material manifestation of different kinds of iron tools as obtained from excavation and whether there has been radical change in the tool repertoire from the chalcolithic period brought about by the introduction of iron.

A few iron artefacts obtained from the excavations of early historic settlements or megalithic burials were subject to metallurgical analysis. However, as Chattopadhyay (1984:362) and Possehl and Gullapalli (1999:162) complained, more than a decade apart from each other, the metallurgical analyses failed to keep pace as most of the artefacts collected were not made accessible for scientific research. Excavations of iron-smelting, blacksmithing and steel making contexts at Naikund, Kodumanal, Bukkasagara, Samanalawewa, Anuradhapura and Dehigaha-ala-kanda made significant contributions towards reconstruction and understanding of various types of iron-working technologies that existed in the Early Historic period. Tripathi (1998), Juleff (1998), Juleff et al. (2009) and Johansen (2014) are also attempting to understand the social context of early iron-working through spatial analyses and ethnoarchaeological enquiries.

To sum up, these various strands of research reflect a large variety of evidence on early iron production in the sub-continent. This suggests that the beginnings of early iron production and its impact is a complex process and cannot be interpreted through an uniform model. The technology may have developed and evolved at several different nodes of the sub-continent, in their own distinct cultural contexts. Broad cross regional technological influences and diffusion may have been limited at the early stages of the development of iron production.

### 1.3 Indian iron and steel in global network in the Early Historic and the Medieval period

The role of Indian iron and steel in international trade networks and the superiority of Indian ferrous technology in a global context, forms another major discussion. The superiority of iron and steel produced in different parts of the Indian sub-continent from the Early Historic period have been emphasized by several scholars (e.g.

Balasubhramaniam, 2000, Srinivasan et al., 2004, Jaikishan, 2009). The famous rust-resistant 5<sup>th</sup> century AD iron pillar at Mehrauli epitomizes the achievements of early iron-technology in the Indian sub-continent (Anantharaman, 1996, Balasubramaniam, 2000, Ghosh, 1963, Lahiri et al., 1963, Smith, 1897). Indian steel, ambiguously termed as *wootz*, is believed to be in high demand in the West Asian and European markets since the 1<sup>st</sup> century AD, and were exported through various maritime and overland trade networks (Bronson, 1986).

#### 1.3.1 Introducing *wootz*

*Wootz*, as mentioned above, is an ambiguous term that is used more often to indicate high-carbon steel from India, which was produced by carburization of smelted iron in clay crucibles. The term *wootz* was put in print for the first time by Pearson (1795) when he reported the results of experiments on the samples of Indian steel sent to him from Bombay. However, the origin of the term *wootz* is controversial. The more popular view among scholars is that *wootz* is a corruption of *urukku* or *ukku*, the Tamil and Telugu words for steel (Sasisekaran, 2002, Sasisekaran and Rao, 1999, Balasubramaniam et al., 2007, Jaikishan, 2009). A less prominent view suggests *wootz* is the corruption of



*wuz*, the Gujarati word for steel (Maryon, 1960). Dube (2014) has recently argued that *wootz* may have originated from the Sanskrit word *utsa*. This debate, however, is yet to be resolved and requires more linguistic research. I will not elaborate on this further as it is beyond the scope of the current research.

### 1.3.2 Archaeology of crucible steel

Sporadic archaeological evidence of high carbon crucible steel production has been identified in different places of South India, Sri Lanka and Central Asia. (Fig. 1.8). While the archaeological evidence of crucible steel production has been temporally fairly well situated for the sites in Central Asia (Rehren and Papakhristu (*sic*), 2000, Rehren and Papachristou, 2003, Feuerbach, 2007) and to a lesser extent, for Sri Lanka (Juleff, 2015), the dates of the sites in peninsular India remain ambiguous. The Central Asian sites, primarily located in the Ferghana valley of Uzbekistan (e.g. Akhsiket, Pap, Kuva and Termez), Merv in Turkmenistan and Almaty in Kazakhstan have provided medieval 8<sup>th</sup>-12<sup>th</sup> century AD dates for crucible steel production (Rehren and Papachristou, 2003).

The earliest known evidence of steel production in the crucible process has been dated between 6<sup>th</sup>-12<sup>th</sup> century AD from a site named Hattota Amune in the central highlands of Sri Lanka (Juleff, 2015:85). Although the production of crucible steel at Hattota Amune coincides with the peak period of steel production in the wind-powered furnaces of the west-facing technology at Samanalawewa in the southern part of the central highlands, Juleff (2015) suggests that these two technologies had developed independent of each other. While there is no archaeological evidence of the latter after



the 12<sup>th</sup> century, steel production through the crucible method continued in Sri Lanka well into the 19<sup>th</sup> century.

The evidence of crucible steel production in South India is more ethnographic than archaeological. The earliest archaeological evidence of the presence of high carbon steel in South India comes from Kadebakele, an Iron Age site in northern Karnataka. A small iron ring excavated from the site showed microstructural similarities with other known high-carbon crucible steel samples, and indicated the presence of 0.8% carbon. The layer from which the ring was found has been dated between 800-440 BC. Although there was no clear indication about the technology used to produce this high-carbon steel, it was suggested that it could be a precursor, of the crucible steel technology that became prominent in South India in the early centuries of AD (Srinivasan et al., 2009).

As mentioned above (1.2.4) the earliest evidence of crucible steel production comes from multiple crucible fragments and two crucible steel furnaces in the early historic habitation and industrial context of Kodumanal in Tamil Nadu (Srinivasan, 2007). The production context in Kodumanal have been dated between 3<sup>rd</sup> century BC to 3<sup>rd</sup> century AD (Sasisekaran, 2002, Srinivasan, 2007). Apart from these Srinivasan (2007, 2009) identified and analysed crucible fragments from Mel-Siruvalur, a site continuously occupied between 1<sup>st</sup> millennium BC until the 5<sup>th</sup> century AD. However, more research is required at Mel-Siruvalur to understand the comparative chronology of the crucible steel production and the Early Historic habitation evidence on the site.

The best archaeological evidence of crucible steel production in South India comes from Gattihosahalli (Craddock, 1998, Anantharamu et al., 1999) in Karnataka and Konsamudram (Lowe, 1989, Balasubramaniam et al., 2007) in Telangana. Although the eyewitness accounts of crucible steel production in these sites only date from the 19<sup>th</sup> century, Srinivasan (2007) suggested that the production here can be dated back to least 16<sup>th</sup> century AD. During the *Pioneering Metallurgy* project of 2010, a joint team of archaeologists from India and the UK have identified several other crucible steel production sites in the landscape of northern Telangana (Juleff et al., 2014). The preliminary finds of this survey will be discussed in the following chapter.

Rehren and Papachristou (2003) analyzed the crucible samples collected from the above sites in Central Asia, Sri Lanka and South India. Based on the morphological and structural analysis of the crucibles, they argued that although all of the three regions produced steel through direct carburisation of iron in clay crucibles, the production in Central Asia and that of South India and Sri Lanka represent two distinct technological traditions. Feuerbach (2007), on the other hand, noticed some morphological similarities between the crucibles found in Central Asia and those found in Konsamudram. Based on these, she speculated that the crucible steel technology at Konsamudram was a mix of the technology used in rest of South India, and that of Central Asia. She suggested that the Central Asian influence probably came with the advent of the Persians in to north India and their gradual dispersal in the south. However, further study is required in order to test this hypothesis.

### 1.3.3 Indian iron and steel in Classical Greco-Roman sources

Bronson (1986:18) identified seven Greco-Roman sources in his comprehensive review of early references on Indian iron and steel. These are scattered across a period between 5<sup>th</sup> century BC and 2<sup>nd</sup> century AD. As Bronson (1986:18) rightly pointed out, among these only the *Periplus Maris Erythaei*, an anonymous 2<sup>nd</sup> century AD Greco-Roman document on the Red Sea and the Indian Ocean trade, unequivocally mentions Indian iron and steel. The *Periplus* indicates that “Indian iron and steel were shipped from the inland part of the Ariake, presumably on the Arabian Peninsula, to Adouli and other ports on the Red Sea” (Bronson, 1986:18). “Indian iron” was specified as a dutiable article in the Laws of Marcus Aurelius and Commodus (2<sup>nd</sup> century AD) (Allan and Gilmour, 2000:113). Another 2<sup>nd</sup> century AD source attributed to Clement of Alexandria, clearly mentions Indian iron while warning against excessive luxury:

“It is quite unnecessary to use Indian iron when making knife to cut meat”

(Bronson, 1986:18).

Apart from the above sources identified by Bronson, the quality of Indian iron sent to Rome found praise in Pliny’s *Natural History* (Craddock, 2013:18). A recipe for making crucible steel could also be found in a 2<sup>nd</sup> century AD treatise on alchemy by Zosimos of Alexandria. According to this treatise, steel produced by packing pieces of iron, skins of dates and ‘female magnesia’ in clay crucibles were used to manufacture high quality swords in Persia (Giumlia-mair et al., 2006:42, Craddock, 2013:19-20).

Craddock suggests that the long-distance nature of this ancient iron and steel trade from the Indian sub-continent prompted several modern scholars to speculate on the superior quality of Indian iron and steel. However, he argues that the demand of South Asian iron and steel could stem from the scarcity of wooded areas to make charcoal in the deserts of Middle East and North Africa. The tropical forests of peninsular India and Sri Lanka could be easily exploited to produce large amounts of high quality iron and steel, which were then exported to the Arabian peninsula where lack of resources to make charcoal might have constrained the indigenous production of iron (2013:19).

#### **1.3.4 Indian iron and steel in Medieval Islamic literature**

Indian iron and swords forged out of Indian steel started becoming prominent in the late pre-Islamic literature in the 6<sup>th</sup> and 7<sup>th</sup> centuries. *Hinduwani*, *hunduwani* and *muhenned* are listed as different types of swords from *al-Hind* (India) (Bronson, 1986:19). Allan (2000:113) points out that appreciation of swords made from Indian steel became more widespread in the early Islamic literature during the 8<sup>th</sup> and 9<sup>th</sup> centuries AD. This period undoubtedly saw an increase in the trade of Indian iron and steel into Persia and other parts of the Islamic world in West Asia. The reason for behind this rapid increase could be interpreted by the fact that swords assumed a strong practical and semiotic significance in the early centuries of Islam. *Sayf al-Islam* (Sword of Islam) was often used as honorific title from the time of the Prophet (Hoyland et al., 2012:6), and served both as a symbolic representation of Islam and its early territorial conquests. This high symbolic importance of swords in the Islamic culture prompted scientific enquiries in sword manufacturing techniques by scholars including al-Kindi, al-Biruni and al-Tarsusi.

### ***Al-Kindi's "On Swords and their Kinds"***

Al-Kindi (c. 800-60/70 AD) is one of the most celebrated intellectuals in the early centuries of Islam. He composed several well-known scientific and philosophical treatises under the patronage of three Baghdad Caliphs; Mamun (813-33 AD), Mutasim (833-42 AD) and Mutawakkil (847-61 AD). Mutasim commissioned al-Kindi to write a scientific treatise on the nature of different kinds of swords known to the contemporary Islamic world (Hoyland et al., 2012:1-2). In order to investigate different qualities of iron and steel used to forge various types and qualities of sword, Al-Kindi travelled in different sword manufacturing centres and interviewed various sword-smiths of the Islamic world (Hoyland et al., 2012:4).

Al-Kindi and his informers exhibited a comprehensive knowledge of an array of forging processes and their outcomes. The treatise also displayed a good amount of understanding that iron-smelting and steel making were two distinct technological processes. Al-Kindi divided iron (*hadid*) into two main categories (Fig. 1.7): 'mined' and 'unmined'. According to him, 'mined' iron is produced in a one step process in which iron ore was smelted to acquire the 'raw iron'. On the other hand, crucible steel and steel produced in other methods (*fuladh*), is grouped under the 'unmined' category because it can only be produced through a secondary processing of 'mined' iron (Hoyland et al., 2012:15-17).

Al-Kindi accorded a prestigious position to the swords made of Indian steel (*Hindi*). In his categorisation of swords (Fig. 1.7), *Hindi* was ranked third in the "ancient" (meaning, the finest) category behind Yemeni and Qala'i (believed to be from Sarawak in

Malaysia) (Hoyland et al., 2012:19). He states that the inherent properties of Indian steel blades are similar to that of the Yemeni blades, except for a slightly darker background of the watered surface (Hoyland et al., 2012:67). Al-Kindi also talks about the swords made in *Sarandib* (Sri Lanka) (*niy*) (Hoyland et al., 2012:39). *Sarandibi* swords are ranked in the “neither-ancient-nor-modern” category. The half-finished swords forged from *Sarandibi* steel were imported in Baghdad, where the local smiths carried out a final heat-treatment, polishing and etching (Hoyland et al., 2012:72). In his commentary of al-Kindi’s treatise, Gilmour (2012:73) suggests that Sri Lankan steel ingots were exported to Mansura, the Arab capital in Sind, where the best blades were forged out of them.

### ***Al-Biruni’s “Sum of Knowledge about Precious Stones”***

Al-Biruni (c. 973-1048 AD) was another versatile scholar in the early Islamic world. In his early years, he received thorough training in the sciences of his time, before he sought patronage in various courts in West Asia and Transoxiana (Central Asia). Al-Biruni received employment in the court of Sultan Mahmud (c. 971-1030 AD) of Ghazna (in modern Afghanistan), where he taught Greek sciences, and also expanded the scope of his knowledge (Hoyland and Gilmour, 2012:148). Under the patronage of the Ghaznavid court, al-Biruni composed his mineralogical treatise “The Sum of Knowledge about Precious Stones”, which includes a chapter on iron.

Unlike al-Kindi, al-Biruni’s treatise on iron and different kind of swords, is a part of a bigger encyclopedic project about contemporary mineralogical knowledge. The treatise, therefore, is short and less detailed in scope. Al-Biruni is primarily concerned about the

production of iron and steel, and various kinds of swords in the regions around his base in Ghazna (Hoyland and Gilmour, 2012:156). However, swords made of crucible steel imported from the Indian sub-continent features prominently in his work. He mentions a kind of sword known as the *muhammad* (lit. “Indianized”), which was forged in Yemen out of crucible steel exported from the Indian sub-continent, and was rated among the best quality of swords (Hoyland and Gilmour, 2012:165). Sultan Mahmud’s repeated invasions in the Indus and the upper Gangetic regions of North India afforded al-Biruni with the opportunity to explore and acquire knowledge from further afield. As a result, his chapter on iron contains an invaluable description of northwest Indian swords and recipes of iron-smelting and steel production. *Palarak* was considered as the best kind of steel from which most expensive swords and daggers were forged. In his brief description of crucible steel (*fuladh*) production in Kannauj in the Gangetic valley of north India, al-Biruni recorded that the iron for the crucible steel was smelted from a ferruginous red sand (Hoyland and Gilmour, 2012:169). Hoyland and Gilmour (2012:169), in their commentary on al-Biruni’s treatise, suggested that crucible steel in Kannauj was produced by mixing two kinds of locally smelted iron (soft iron and white cast iron) combined with borax in a crucible. This was similar to the process followed in northern Iran, which in turn produced the watered patterning in the swords.

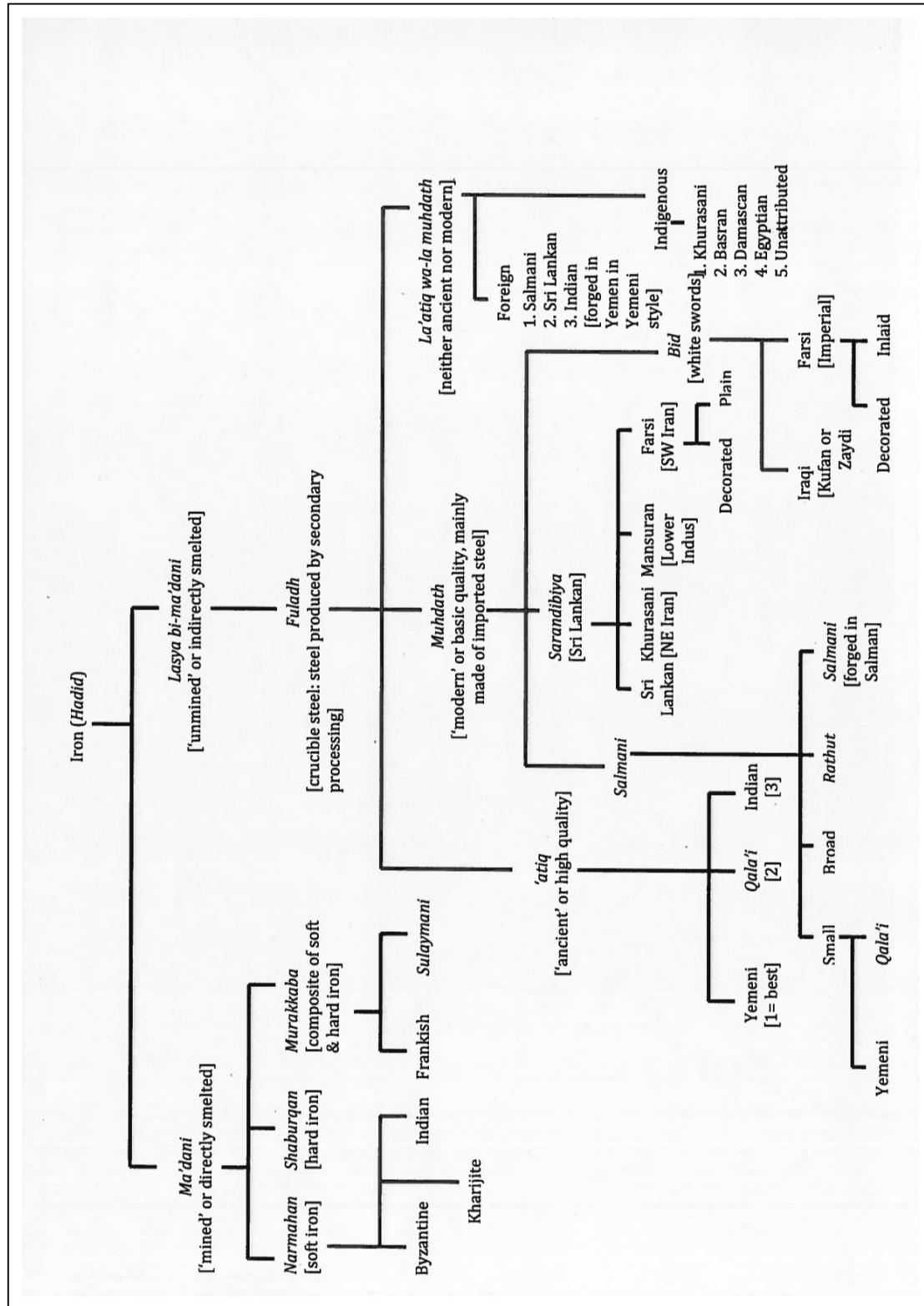


Figure 1.7 Al-Kindi's categorization of steel, after Hoyland and Gilmour ( 2012)



### ***Al-Tarsusi and later West Asian writing***

Al-Tarsusi was a 12<sup>th</sup> century arab military strategist and intellectual who composed a treatise on contemporary armoury and weapons for his patron, Saladin (1169-93 AD), the celebrated founder of the Ayyubid dynasty. In his treatise, he mentions swords made of Indian steel, but his focus is mainly concentrated to crucible steel production and weapons manufacturing in Egypt and West Asia, the areas ruled by his patron (Bronson, 1986:19) . Several other medieval Islamic writers like Jabir ibn Hayan (8<sup>th</sup> century AD), al-Idrisi (12<sup>th</sup> century AD), Fakhr-i-Mudabbir (13<sup>th</sup> century AD) and ibn Hodeil (14<sup>th</sup> century AD) wrote about swords made of steel from the Indian subcontinent (Bronson, 1986).

The most definitive proof of trade in Indian iron comes from the 12<sup>th</sup> century AD Geniza archives in Cairo—a collection of Judeo-Arabic commercial documents (Bronson, 1986:20). Two letters sent by a merchant from Aden to his counterpart in the Malabar region of Kerala mentions the export of a large quantity (about 4,000 kg) of iron from the Malabar coast (Bronson, 1986:20). Based on this, Bronson (1986:20) concluded that the Arabian peninsula was largely dependent on the import of iron from the Indian sub-continent.

### **1.3.5 Trade in Indian iron and steel in the 16<sup>th</sup> and 17<sup>th</sup> centuries**

With the expansion of Europe's political and commercial influence in Asia in the 16<sup>th</sup> and 17<sup>th</sup> centuries, Indian iron and steel started appearing more frequently in the travelogues and memoirs of Europeans. Duarte Barbosa (c.1480-1521 AD) and Tome

Pires (c. 1465-1524 AD), who were actively involved in Portuguese trade in South and Southeast Asia, mentioned Indian iron as one of the main commodities exported to West Asia and Portugal from Goa in India (Allan and Gilmour, 2000:114, Bronson, 1986:21).

### ***Iron and steel from Golconda (Hyderabad), Telangana***

Iron and steel manufactured in Golconda (now Hyderabad) in Telangana, the region of study for this research becomes prominent in the 17<sup>th</sup> century European writings.

Chardin (1643-1713 AD) praised the damascened Iranian scimitars and mentioned that they were forged from Indian steel (Allan and Gilmour, 2000:114).

French gem merchant and prolific traveller, Tavernier (1605-1689 AD) was first to mention that the Indian steel used in Iran originated from Golconda. He recorded that the Iranian smiths mixed native steel with the Golconda steel to forge the blades of damascened swords. He mentions that only the blades made out of Golconda steel can be damasked (Allan and Gilmour, 2000:114, Bronson, 1986:22).

Bronson (1986:22-23) cites a long quote from Tavernier, which describes that the Golconda steel was sold in ingots “as large as one-sou loaves” and travelled in the commercial network through Persia, northern Turkey, Constantinople, Aleppo and Damascus and finally reached as far as Cairo via Red Sea trade networks, before passing on to European markets. Quoting the memoir of 17<sup>th</sup> century traveller Struys, Allan (2000:115) shows that Indian steel reached Sultania in northeastern Iran, where the gates of a 14<sup>th</sup> century mausoleum was made of Indian steel. In the 17<sup>th</sup> century, Golconda steel had reached the markets of the remote city of Ardabil, where it was used for manufacturing swords (Allan and Gilmour, 2000:115).

Based on 16<sup>th</sup> century memoirs of the employees of Dutch and English East India Companies, and quantitative data from the published journals of the former (the *Daghregisters*), Bronson (1986:22) shows that a considerable amount of trade in Golconda iron and steel was conducted through the port of Masulipattanam in the Coromondal coast. These were primarily exported to Indonesia and Thailand.

### ***Damascus steel?***

The superiority of exquisitely decorated (*damascened*) sword blades (Fig. 1.8) forged out of ‘Damascus’ steel persisted in European imagination since the 9<sup>th</sup>-10<sup>th</sup> centuries. The earliest written reference of this fascination comes from the writing of the French traveller Bertrandon de la Broquiere (c. 1400-59 AD) who termed “Damascus blades” to be the “handsomest and best of all Syria” (Allan and Gilmour, 2000:77).



*Figure 1. 8 'Damascus' steel dagger with Quaranic invocations (19<sup>th</sup> c., Iran).  
Source: MET, New York*

This is, however, a common misconception. It was first pointed out by Tavernier in his 17<sup>th</sup> century travelogue—

“I speak thus to undeceive those people who think our Scimitars and Cut-lasses are made of steel of Damascus, which is a vulgur error; there being no steel in the world but that of Golconda which can be Damask’d without the steel consuming itself as does ours.”

(Bronson, 1986:23)

As Elgood (1994:103-108), and later Allan and Gilmour (2000:76) and Feuerbach (2006:48) conclusively showed that there is no evidence that Damascus was a major crucible steel producing and sword manufacturing centre in the medieval period. Damascus was an important trade centre in West Asia through which exquisite swords forged in Iran and Yemen out of crucible steel from the Indian sub-continent passed to the European merchants, and were popular in Europe as ‘Damascus’ steel blades.

### 1.3.6 Discussion

From the above discussion, it is evident that iron and steel produced in the Indian sub-continent passed through international commercial networks since the early centuries of the present era. However, as Bronson (1986:18-19) indicated that there is no substantial proof that Indian iron and steel was internationally acclaimed for its quality and did not become the main commodity of exchange during this period. Indian and Sri Lankan steel started to feature more prominently in the scientific treatises of various medieval Islamic scholars as the raw material for exquisitely forged and damascened

sword blades. Crucible steel (*fuladh*) produced in the Indian sub-continent were exported to Yemen and Persia, where they were forged into high quality blades. Bronson (1986:20), quoting al-Idrisi and ibn Hodeil, shows that the Arab scholars were not always unanimous about the superiority of the swords made from Indian steel. While al-Idrisi praised the “unsurpassed” edge of the blades forged out of Indian steel, ibn Hodeil was more sceptical and implied that such blades were more brittle, especially in the cold weather. In fact, the brittleness of Indian steel blades seem to have been a very common complaint among the 17<sup>th</sup>-18<sup>th</sup> century Indian nobility and military elites, who preferred imported European swords because of their superior toughness and flexibility (Bronson, 1986:25). Bronson (1986:21-22) also argues that although the letters in the Geniza archives and later Dutch and British East India Company documents indicate a large amount of export in iron and steel from various parts of India, the quality of the iron and steel may not have been more than ordinary.

After taking Bronson’s caution against eulogizing the quality of Indian iron and steel into account, it can however, be safely stated that iron and steel produced in the Indian sub-continent was regularly making its way into the far flung markets of Persia and West Asia since the 7<sup>th</sup> century AD. Some may have ultimately reached European markets through Damascus and Egypt, although there is no evidence to imply that it was the intended destination.

Although probably not of the extraordinary quality, as some scholars would have us believe (e.g. Jaikishan, 2009) crucible steel produced in India and Sri Lanka was superior enough to create and maintain a constant demand in the Islamic world. It also

attracted attention and praise of several Islamic and European scholars, merchants and travellers since the 8<sup>th</sup> century AD.

#### **1.4 Anthropological and ethnoarchaeological research on iron-working communities in India**

The anthropological study of iron smelters and blacksmiths in the Indian sub-continent is another pathway through the archaeology of iron and steel has been studied.

Although a majority of these studies come from anthropologists, they provide interesting insights into the social context of iron-working. These, in turn, makes several analogical models available to interpret the archaeological record on past production, consumption and discard of iron and steel.

For a complete understanding of specialized craft production, it is essential to investigate various stages of ‘technical system’ (Costin, 2001:273). According to Costin (2001), the ‘technical system’ of a craft comprises of six interrelated components—artisans, means of production, the organization of production, distribution networks, finished products and the consumers. However, not all of these components can be adequately identified in the archaeological record of past craft production. Moreover, several ethnoarchaeological studies have shown that craft-production is a culturally constituted activity embedded with deep socio-political meanings (Chirikure, 2007) . The technological choices and styles adopted by the craft specialists are therefore often regulated by several community-specific cultural norms, which results in a variety of co-existing ‘technical systems’ that leave their distinct signatures in the archaeological record (Killick, 2004, Rehren et al., 2007, Costin, 2000). Understanding the socio-

cultural rationale behind the technological decisions of past craft producers through the archaeological record is impossible. However, ethnographic studies of extant traditional craft communities in a similar cultural context affords valuable opportunity to provide interpretative models which facilitate a more nuanced understanding of the archaeological record. The Indian sub-continent is one such region that has potential for this kind of ethnographic study to interpret the archaeological record of craft production. However, as Sinopoli (1991:178) pointed out, ethnoarchaeological research only provides important interpretative frameworks for understanding the social contexts and material consequences of behaviours and technologies and does not provide a blueprint of the past.

#### **1.4.1 Anthropological research of iron-working communities in India**

##### ***Colonial eye-witness accounts***

The earliest first hand documentation of pre-industrial iron-smelting and steel production in India comes from the eye-witness accounts of several East India Company officials since the early 19<sup>th</sup> century. Francis Buchanan extensively surveyed a large area in peninsular India (what now constitutes of Karnataka, Tamil Nadu and Kerala) after the defeat of Tipu Sultan (1799) at the hands of the English East India Company. The three-part journal that he published after the survey contains many references of iron-smelting and steel making in the region. Buchanan meticulously describes various smelting and steel making technologies with accompanying sketches (Fig. 1.9). He also recorded the social organization of production of iron and steel (Buchanan, 1807:Vol I 118-121, 305-309; Vol II 35-37, 436-440; Vol III 360-363).



Benjamin Heyne also published eye-witness accounts of iron-smelting and steel making in Cuddapah (in modern Andhra Pradesh) and parts of Coastal Andhra in his travelogue of peninsular India (Heyne, 1814:Tracts IX, XII, XIII & XXIV). Valentine Ball had similarly explored the forested parts of contemporary Bengal province (mod. Jharkhand and Bihar) and recorded indigenous iron smelting communities in that region (Ball, 1880). Thomas Oldham similarly recorded indigenous iron-smelting in the Talcher region of Orissa (Oldham, 1859:1-30). There are similar descriptions of iron-smelting in Gazetteers of Bellary (Kelsall and Madras, 1872) and Nellore (Boswell, 1873), in northern Karnataka and coastal Andhra Pradesh respectively.

The only surviving eye-witness account from the northern Telangana region comes from Voysey (1832). He recorded the technology of crucible steel production that he had witnessed several times in the village of Konasamudram (in modern Nizamabad District) which was a major crucible steel production sites, as confirmed by recent archaeological surveys in the region (Lowe, 1989, Jaikishan, 2009, Juleff et al., 2011,).

These 19<sup>th</sup> century eye-witness accounts provide valuable insights into the technology of iron-smelting and steel production and its immediate social context. They provide a comprehensive

description of a variety of iron-smelting and steel making technologies that co-existed in different parts of the sub-continent. They also describe the social groups involved in the production, and the various ways they were organized in the production context. Finally, these documents record various economic channels through which iron and steel passed to the market for consumption. These provide a number of possible

interpretative frameworks which can expand our understanding of past iron-smelting technologies and associated social and economic contexts.

### ***Early studies on rural craftsmen***

The study of rural craft producers or the 'artisan caste' feature prominently in the 19<sup>th</sup> and early 20<sup>th</sup> century studies of Indian village societies. Baden-Powell's comprehensive study of Indian village systems based on various types of contemporary land tenures and revenue administration system, mentions the rural blacksmiths, along with the potter, the carpenter, the cobbler, the washermen, the sweeper and the barber, were important 'artisan' and 'menial' groups patronized by the entire village community. These groups provided important services for the villagers and performed important ritual functions in several religious and social ceremonies in the village (Baden-Powell, 1972[1896]:16-17).

Coomaraswamy investigated the social and economic position and role of traditional craft-communities in the Indian sub-continent (1909). Based on ethnographic observations and readings of historical texts from India and Sri Lanka, he efficiently teased out differences in the system of organization and patterns of patronage among the artisan communities in functioning in distinct socio-economic contexts. I will discuss his study of the rural craft-communities of the Indian sub-continent below in brief as it is relevant to the present research. Coomaraswamy examined the symbiotic economic relationship between the rural craft-communities and their clients in detail. He pointed out that apart from providing essential services to their clients and

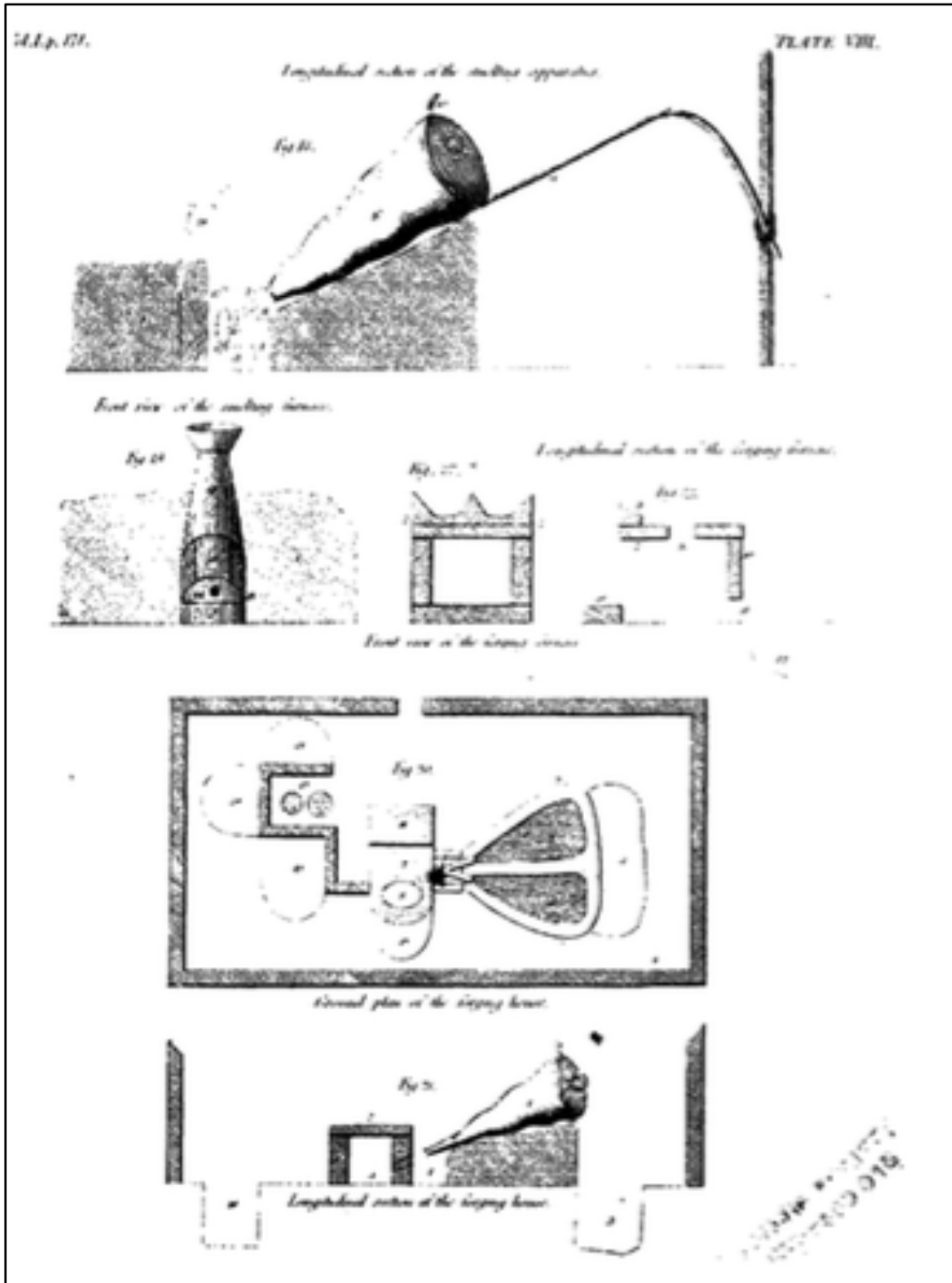


Figure 1.9 Francis Buchanan's sketch of iron-smelting furnace at Magadi in modern Karnataka state (Buchanan, 1807)

receiving a tradition regulated annual crop-payment in return, different craft-communities have important roles to play in life-cycle rituals, and therefore are functionally and ritually indispensable for the village community in the Indian sub-continent (Coomaraswamy, 1909:2-4). He also identified the existence of “craft guilds” in some villages. These served as representative bodies of rural craftsmen and ‘menials’ which regulated payment and the customary duties of these groups (Coomaraswamy, 1909:3). Coomaraswamy also records different conventional methods through which these craft-communities received annual remunerations and occasional bonuses from their clients (1909:5-6). His study also includes a valuable corpus of myths and legends.

Although Coomaraswamy’s thesis suffers from the problem of sweeping generalizations, that characterises most anthropological work on India in the early 20<sup>th</sup> century, it nevertheless provides valuable information about the contemporary social and economic context of rural craft production. This information is significant for the present research because it enables me to study the present context in juxtaposition to the past. It serves as the base to understand and trace the processes of transformation in the socio-economic context of rural craft production, and investigate the reasons behind the change, which is an important aim of this thesis. The resulting study in this thesis provides a viable theoretical model to understand and interpret change and decline in craft production networks in past societies. I will discuss this mechanism of homogenization in the context of northern Telangana in detail in Chapters 6, 9 and 10.

### ***Coomaraswamy's account on iron-smelting at Hatarabage, Sri Lanka***

Probably the most significant contribution of Coomaraswamy on the study of pre-industrial iron-smelting comes from his detailed eye witness account of smelting at Hatarabage in Balangoda district of south-central Sri Lanka (1956). Between 1902 and 1906, Coomaraswamy recorded several instances of crucible steel production and iron-smelting in this area while working as the Chief Mineralogist for the Ceylon Mineralogical Survey (Juleff et al., 2009).

At Hatarabage, Coomaraswamy made a detailed record of a demonstration of iron-smelting by a family belonging to the *yamannu* (iron-smelter) caste. The smelting was done in a small, foot-bellow driven shaft furnace, where hematite or limonite ore was smelted into iron blooms after 3-4 hours of operation of the furnace. The ore was collected from the neighbouring hills where decomposed rocks exposed the nodules of hematite and limonite. Before smelting, the ore was pulverised and roasted in order to remove residual water. The earthen furnace had two openings: one in front for slag and for extracting the bloom, and one at the back for the bellows to deliver the draught in the furnace through the tuyères. The hollow wooden bases foot-driven bellows were sunk in the ground behind the furnace, and covered with deer skins, and operated by two individuals in turn to constantly blow air into the furnace during the smelting process. In order to protect the bellows-men from the heat of the furnace, a wattle and daub wall was constructed. This wall, as the pictures taken by Coomaraswamy at Hatarabage indicate, was taller than the bellow-operators, thus shielding their vision entirely from the actual smelting activity (Coomaraswamy, 1956, from Juleff et al., 2009).

In this context, it is important to note that the furnace described by Coomaraswamy in Hatarabage, has more morphological parallels with the ones recorded by the current author in the living memory of the Asur iron-smelters of Jharkhand in east-central India, than the ones in northern Telangana. The Asur smelters used a similar type of furnace, with foot-driven buffalo skin bellows. The only difference in the Asur furnace is the absence of the screening wall between the furnace and the bellows. Contrastingly, in northern Telangana, and, the bellows were hand operated, and the furnaces did not have a hole to extract the bloom. The progress of smelting was monitored through a small slag channel, or through an extra tuyere embedded in the furnace and when complete, the bloom extracted by breaking off a part of the furnace wall (see 7.2.1). Based on these similarities and differences, it is tempting to speculate that the technology of iron-smelting in Jharkhand, and many other tribal contexts in India, and that of the one described by Coomaraswamy in Sri Lanka might have been from related smelting traditions; while the one in northern Telangana, is from a different smelting tradition altogether.

### ***Colonial anthropologies—the “castes and tribes” model***

Another avenue through which 19<sup>th</sup> and 20<sup>th</sup> century anthropologists (Hassan, 1920, Thurston and Rangachari, 1975[1909], Risley, 1892, Russell, 1916) studied various Indian communities, is through the classification of different groups based on their caste affiliations. This “castes and tribes” approach, which is reflected in their publication titles, recorded the origin myths, caste-beliefs, rituals and “traditional occupation” of each “caste”. Their enquiries also included taking meticulous anthropometric

measurements of individuals from various castes (Thurston and Rangachari, 1975[1909], Risley, 1915).

Although flawed by modern perceptions, Thurston and Rangachari's study of castes and tribes of British South Indian provinces (1975[1909]), and Hassan's study on the same theme for the Hyderabad state (1920) throws up significant regional variations among the iron-working communities in peninsular India. Both studies show a host of different communities, with distinct belief systems, and social organizations coexisted in the region in the early 20<sup>th</sup> century. At the initial stages of fieldwork in northern Telangana for the current project, it was difficult to identify these diverse groups, as there has been a homogenizing trend in artisan group identities over the last century. Thurston and Hassan's record does not only provide invaluable insight into this past diversity, it also serves as a tangible reference-point to trace and understand the identity homogenization process and its impact on specialized craft production. Moreover, this provides an important tool in grasping the mechanism of formation and evolution of group identities in the context of peninsular India. I will discuss this process in the context of northern Telangana in detail in Chapter 10.

### ***Anthropological and historical studies of tribal iron-smelters***

In 1941, Verrier Elwin published his study of the tribal Agaria iron-smelters of the forested Chhotanagpur Plateau in central India. This pioneering work was the result of half a decade of dedicated anthropological research with this iron-smelting tribe. Elwin's (1941) detailed study described how iron-smelting was central to the Agaria identity. The Agaria's trace their origin from *Lohasur* (the god of iron) and *Agyasur* (the god of

fire). Elwin described a complex system of myths and magic, with regional variations woven around the imagery of the act of smelting, which encompass every aspect of Agaria lives (Elwin, 1941:86-130). Agaria smelters depend on magic and omens to make crucial **decisions** about selection of iron-ore mines, preferred smelting spots and construction and repair of smelting furnaces (Elwin, 1941:130-210). Elwin described iron-smelting done by various Agaria sub-groups. He pointed out subtle regional differences in technological choices in terms of ore selection, furnace design, bellow-design, layout of the smelting area and the nature of responsibilities among Agaria men and women involved in smelting. These differences, as Elwin showed, were not arbitrary actions but had deep ideological cultural meanings to each of these sub-groups (Elwin, 1941:169-210). This publication also included a number of excellent photographs depicting different aspects of Agaria life and craft.

Elwin's study of the Agarias remain the only anthropological research in the Indian sub-continent that recorded an iron-smelting community in its immediate social context, when pre-industrial iron smelting was still prevalent. That is why it is immensely valuable for our understanding of pre-industrial iron-working in the Indian sub-continent. Firstly, it unequivocally shows that the act of iron-smelting was not just an economic and technological activity, but a culturally meaningful performance charged with deep social and political significance. Secondly, it adequately records several non-technological socio-cultural factors influence technological decision making among different Agaria sub-groups. These culturally constructed decisions find physical manifestation in the furnace designs, geo-spatial and social organization of iron-smelting, the material remains of which, in turn enters the archaeological record. Elwin's study makes several



important analogical models available for interpreting the archaeological remains of pre-industrial iron-smelting, by throwing light on how cultural beliefs can influence patterning in technological remains in archaeometallurgical record.

Following Elwin, Leuva, a retired government officer, conducted an amateur ethnographic study of the Asur iron-smelting tribe of the remote Netarhat plateau of Jharkhand in eastern India (1963). The Asurs are a branch of the Agarias of central India studied by Elwin. The Agarias and the Asurs share the same system of myths and worship *Lohasur* and *Agyasur*, with slight regional variations.

The Asurs, like the Agarias, are listed as endangered primitive tribes in India. They still live in small isolated hamlets near iron-rich laterite veins on the top of the Netarhat plateau, in Jharkhand state of east-central India. Leuva studied the Asurs in the late 1950s, when the Government of India had prohibited exploitation of forest resources for iron-smelting. His study, therefore records, the immediate effects of the decline in iron-smelting among the Asurs. He demonstrated that the Asurs were increasingly taking up agriculture, and in the process, transforming the landscape around their hamlets (Leuva, 1963). In 2013, I spent ten days in an Asur village on the Netarhat plateau as a part of my fieldwork for this thesis. During the fieldwork, I observed this process of transformation of the landscape. In many instances, old iron smelting areas are transformed by cultivation. The slag and furnace remains are removed from the landscape and thrown down the slope of the plateau, creating a scattered secondary deposit of slag and refractory material along the forested slope. I had to abruptly abandon the plan of a long and detailed study of the Asurs for personal safety reasons

due to on-going insurgency problem in the area. Leuva's study, and my short field-survey, half a century later, provides a framework to discern the process of ongoing transformation in the landscape, triggered, in this case, by the decline in iron-smelting, and its effects on the archaeological record.

Jan Brouwer (1989-1990, 1995a, 1995b) studied the rural *Viswakarma* craft-groups in different parts of Karnataka. The *Viswakarma* in Karnataka, like elsewhere in peninsular India, consists of five distinct craft communities: the blacksmiths, the carpenters, the gold and silver smiths, the bronze-smiths and the sculptors. Following the semiological framework of de Saussure, Brouwer explained that the rural *Viswakarma* smiths and carpenters use their craft as a secondary mean to articulate and communicate their ideological identity. The *Viswakarma* worldview is therefore, forged through the act of craft-production as "the manufacturers (who) disturb an existing natural order to obtain material which they transform into cultural artifacts meant to be static and permanent" (Brouwer, 1995a:59-60). As a part of his research Brouwer studied the *Viswakarma* blacksmiths in different parts of Karnataka. He showed that how the regional variations in ideological beliefs among these *Viswakarma* blacksmiths are reflected in the structure and orientation of the smithy, and the organization of production (Brouwer, 1995a). Although Brouwer often overemphasizes semiological meanings of different aspects of craft related practices by the *Viswakarmas* of Karnataka, his work provides analogical models to study social context of past craft-production and understand cultural influences that affects physical patterning of craft related space.

Sarkar studied the changing position and role of tribal iron-working groups in the colonial society of Bengal and Jharkhand (1996, 1997a, 1997b). He pointed out that the broader technological changes brought about by the industrial production of iron and steel had initiated a process of transformation in social position and identity among tribal smelters. Many individuals, from the Agaria and the Asur communities abandoned iron-smelting and took up blacksmithing in the plains of eastern India. As a result, they lost their distinct Agaria or Asur identity and merged with the Lohar blacksmiths of the region. I will describe a similar trend of identity transformation in northern Telangana in Parts A and B of this thesis, and analyze the underlying reasons for change in the socio-economic and political context of the region.

Sarkar (2014) also showed that traditional rural craftsmen are normally aware of new technologies and incorporate elements of it in their technical repertoire to increase productivity. Based on evidence from 19<sup>th</sup> and 20<sup>th</sup> century Bengal, he showed that these incorporations did not necessarily indicate a radical shift in their tool repertoire or the social and technological organisation of production (Sarkar, 2014:10-12). Although this study is focussed on 19<sup>th</sup> and 20<sup>th</sup> century Bengal, it offers a viable theoretical model to study the process of technological change in specialized craft production in the past.

Vijaya Ramaswamy (1985, 2004) investigated the position and role of the *Viswakarma* “caste” in the temple-towns of medieval South India. Based on a thorough study of medieval inscriptions obtained from temples in Tamil Nadu and Karnataka, she identified a complex pattern of patronage and economic relations between the state and

the artisans in these urban areas. Ramaswamy pointed out that the nature of patronisation and control is reflected on the geo-spatial location of these artisan communities. Due to a strong state control of the artisans who manufactured for different temples, they lived in the immediate vicinity of the temple complex. On the other hand, other urban artisans, not patronised by the state, were more scattered through the urban landscape.

### ***Ethnographic studies on Indian iron-working communities by archaeologists***

Ethnographic studies of extant iron-working communities have been effectively employed as a research tool to facilitate the understanding of archaeometallurgical record of pre-industrial iron-smelting in Africa (see discussion in 1.4.2). However, the archaeometallurgists studying past iron-working in India have realised its importance only in the past two decades. This has resulted in several pioneering ethnoarchaeological studies of communities who were engaged in pre-industrial iron-working.

Singh (1998) studied the tribal iron-smelters of the Chhotanagpur plateau of Central India to address the issue of indigenous origins of iron smelting technology in the sub-continent. By drawing analogies from his ethnographic fieldwork and from the colonial anthropological literature (discussed above) he pointed out that the tribal iron-smelters in Chhotanagpur plateau have unlimited access to iron-rich lateritic ore and timber for charcoal from the surrounding forests. He argued that these proximities may have enabled these groups to experiment with the resources and ultimately ‘invent’ the

technology of iron-smelting in the Indian sub-continent in the 2<sup>nd</sup> millenium BC (Singh, 1998).

Mishra studied various tribal groups involved in pre-industrial iron-smelting in the Bastar region of the Chhotanagpur plateau in order to preserve the technological memories of elderly smelters who were involved in iron-smelting before it stopped in the early 1950s (2003). Tripathi and her students based at Banaras Hindu University conducted smelting experiments with the help of the Agaria tribal smelters of Chhattisgarh in order to reconstruct past technology (2006, 2014).

Recently, Tehrani (2015) studied the *Gadulia Lohar*, a group of itinerant blacksmiths in Rajasthan. This ethnoarchaeological study was aimed at documenting the fast disappearing traditional knowledge system, tool repertoire, study their mobility patterns in the landscape and finally, understand how the broader socio-economic changes in the sub-continent has transformed the lifestyles of the *Gadulia Lohar* community in the last 30 years. Tehrani (2015) expects that the data collated in her study will aid in unravelling the archaeological record of technology of and mobility of the itinerant iron-working communities in the iron age in the region.

These ethnoarchaeological enquiries provide crucial information about the technology of pre-industrial iron-smelting in the 19<sup>th</sup> and 20<sup>th</sup> centuries. They also help in preserving the technological memories of aged iron-smelters and supply analogical frameworks to study technological remains of past iron-smelting. However, these studies often show a tendency to make sweeping analogical conclusions about Early Historic iron-smelting

technology by using technological details from their ethnographic fieldwork to interpret Early Historic iron-production.

In the context of northern Telangana, Thelma Lowe's study (1989), although primarily metallurgical in nature, also indicated the possibilities of ethnographic research of rural iron-working communities of the region to complement an archaeometallurgical understanding of technology. Ethnographic survey of the rural iron-workers of northern Telangana, conducted under the *Pioneering Metallurgy* project, also demonstrated this potential (Neogi and Jaikishan, 2011). Jaikishan (2009, 2007) extensively studied rural *Viswakarma* blacksmiths and descendants of iron-smelters (*Mudda Kammari*) and crucible steel makers. In his painstaking research covering four districts of northern Telangana, Jaikishan addressed the question of socio-cultural identity of the rural iron-working communities (smelters and blacksmiths) and sought to access individual and collective memory regarding smelting and crucible steel producing technology.

### ***Ethnoarchaeological study of iron-working in Africa and other parts of South and East Asia***

African archaeology has a long tradition of conducting ethnoarchaeological research on extant iron-smelting communities. Several important studies have been published from different parts of sub-saharan Africa in the last 50 years (2007, Chirikure, 2006, Childs and Killick, 1993, Childs, 1998, 2000, Reid and MacLean, 1995, Van der Merwe and Scully, 1971, van der Merwe and Avery, 1987, Wright, 2002, Sasson, 1964, Finneran, 2003, Kusimba, 1996, David et al., 1989). Apart from suggesting analogical models to form a technological understanding of past iron-smelting, these studies have adequately

investigated the social contexts of iron production. The studies demonstrate that iron-working is not simply a technological and economic act, it has important cultural and political meanings embedded in it.

Juleff's archaeometallurgical research on iron-smelting and crucible steel making in Samanlawewa, Sri Lanka (1998), included an ethnographic survey of the extant blacksmiths and descendants of iron-smelters and steel makers in the region. Apart from providing crucial information about the technology of iron-smelting and steel production, her study investigated the network of social and economic relations of the blacksmiths and the iron-smelters. She pointed out that iron-smelters, steel makers and the blacksmiths occupied distinct positions in the local caste-hierarchy, which can be reflected in the archaeological record (Juleff, 1998:101-123, Juleff et al., 2009). In East Asia, Dupaigne (1992) undertook comprehensive ethnoarchaeological research of the Kuay iron-smelting community in central Cambodia. The Kuay are a minority ethnic group who reside near the iron-ore rich Phnom Dek (lit. Iron hills) hill and are known to have smelted iron to provide for the arms to the Angkorian elites, at least since the 16<sup>th</sup> century. Based on his ethnographic and archaeometallurgical research Dupaigne (1992) argued that there was a technological conservatism among the Kuay iron-smelters, and the technology may not have evolved much in the last 1200 years. However, this view has been recently challenged in the light of more archaeometallurgical fieldwork in the area (Pryce et al., 2014).

### **1.5 The problem of synthesis**

The above discussion demonstrates the existence of a large body of academic literature on iron-working in the Indian sub-continent. Both the archaeologists and the anthropologists made significant contributions to this theme and expanded the scope of our understanding in various ways. However, there is a significant divorce between historical, archaeological and scientific research on iron and anthropological study of pre-industrial iron-working groups in India. The large body of research coming out of both strands are mutually exclusive and seldom refer to each other in their analysis and interpretation. It is a primary objective of the present research to bring archaeology and anthropology closer to each other in the context of pre-industrial Indian craft production in general and iron-working in particular in order to develop a more balanced analytical tool to interpret and analyse archaeological data. This study seeks to interpret the archaeological record of iron-smelting and crucible steel production in northern Telangana through a detailed ethnographic study of extant iron-working groups of the region.

### **1.6 Research aims and objectives**

Ethnoarchaeological studies on pre-industrial iron-working and other traditional crafts have attempted to reconstruct past technology through the lives and memories of the craft practitioners; interpret variations in technological choices and styles based on the social contexts; investigate levels of craft specialization and organisation of production as well as examine the social position of the specialized craft producers in discrete socio-cultural contexts. This research incorporates all the above approaches to



investigate a dynamic set of relationships between traditional craft/technology, the craft producers and space: physical and social in the context of iron-working northern Telangana. This study is founded on information gathered from three discrete datasets: ethnographic fieldwork, previous archaeometallurgical studies and 18<sup>th</sup> and 19<sup>th</sup> century colonial documents and newspaper reports obtained from different archives.

### **1.6.1 Approaches**

In order to achieve the overarching objective mentioned above, this study approaches the datasets in two ways.

Firstly, this research seeks to study the lives and record the individual and collective memories of the members of the Mudda Kammari and Kammari community in order to provide a nuanced understanding of the archaeometallurgical record of iron-smelting in northern Telangana. Apart from the reconstruction of past smelting technology, this objective explores the potential of unravelling the socio-cultural context of iron-smelting as well as interpreting the geospatial spread of the archaeometallurgical record in the study area.

The second approach is concerned with understanding iron-worker identities in the context of northern Telangana. Incorporating the data from my ethnographic research,, with the data obtained from several 19th and 20th century colonial anthropologies viz. censuses and ethnological studies, the present study aims to trace the process of identity formation and evolution of social position of iron-smelters and blacksmiths in the region for over the last 150 years.

These two interconnected approaches are presented in Part A and Part B of this thesis respectively.

### **1.6.2 Research questions**

The datasets are addressed by the following overarching research questions that are divided under two interconnected themes in order to unravel different dynamic layers of craft/technology, artisan and space relationships.

#### ***Theme 1: iron-working, iron-workers and physical space***

- What are the factors that determine the physical location of iron-working communities in the landscape?
- How are the organization of production and the level of specialization in craft reflected in the physical space and enter the archaeological record?
- How far has the decline in iron-smelting and blacksmithing affected the location of the iron-working communities on the physical space of northern Telangana?

#### ***Theme 2: iron-working, iron-workers and social space***

- How are the iron-smelters and blacksmiths placed in the network of rural power relations in northern Telangana?
- How far did the decline in the craft of iron-working affect their identity and position in this network?

- What are the different strategies employed by the members of these communities to cope with the decline in craft and maintain a status quo in the social space?

## 1.7 Thesis structure

Chapters 2 to 6 set background of this research. In Chapter 2, I discuss the contributions of Lowe and Jaikishan and the results of the *Pioneering Metallurgy* survey in northern Telangana in further detail before outlining the objectives of the present study. Chapter 3 describes the geographical and historical settings of northern Telangana. I discuss the methodology of this research in Chapter 4. Chapter 5 is about theories. Here I will provide a brief overview of the theoretical lenses employed to analyze and interpret the data of this research. I have used theories of specialized craft production to identify and interpret various types of production contexts and social organization of production and exchange from both archaeological and ethnographic data. Concepts of caste is defined to analyze the aspects of community identity and inter-community relations. Finally, the Foucauldian theory of power and the Bourdieusean practice theory are discussed. Chapter 6 the complexities of *kammari* identity among the different iron-working groups of northern Telangana are explored within the overarching narrative of *Viswabrahmin* caste. The heterogeneity under the umbrella of *kammari* community identity is then explored through the lives of five practitioners with different specialized skills. This provides an entry point into this research, which is presented in two parts.

Part A investigates the intricate relationship between indigenous smelting technologies, smelters and place. Based on interactions with older members of the *Mudda Kammari* (smelter) community, Chapter 7 attempts to reconstruct the pre-industrial iron-smelting technology in the study area. Chapter 8, takes the ethnographic information discussed in Chapter 7 to offer a fresh perspective at the archaeometallurgical record of northern Telangana. Here I undertake a landscape based approach with the help of the ethnographic information, fieldwork, and satellite imagery to understand the spatial location of the iron-smelting sites in the wider landscape of the study area.

Part B (Chapters 9 and 10) of this research studies the decline in traditional iron-working, and the resultant homogenization of iron-worker identities Chapter 9 explores different the reasons behind the decline in demand for the services of the rural blacksmiths. In Chapter 10, I explore how the impoverished members of the *kammari* community have tried to cope with the decline by reinventing their caste identity by subscribing to a pan-Indian *Viswakarma/Viswabrahmin* caste narrative.

In the final section of the thesis I bring the diverse data together to form a nuanced understanding of the social, cultural and economic context of iron working in northern Telangana. Based on the complexity of iron-worker identity in northern Telangana this section cautions against drawing straightforward ethnographic analogies to study the archaeological record. I conclude by summing up the major findings and charting the future pathway this research can take in Chapter 11.

## CHAPTER 2

### BACKGROUNDS: A REGIONAL FOCUS ON NORTHERN TELANGANA

#### 2.1 Introduction

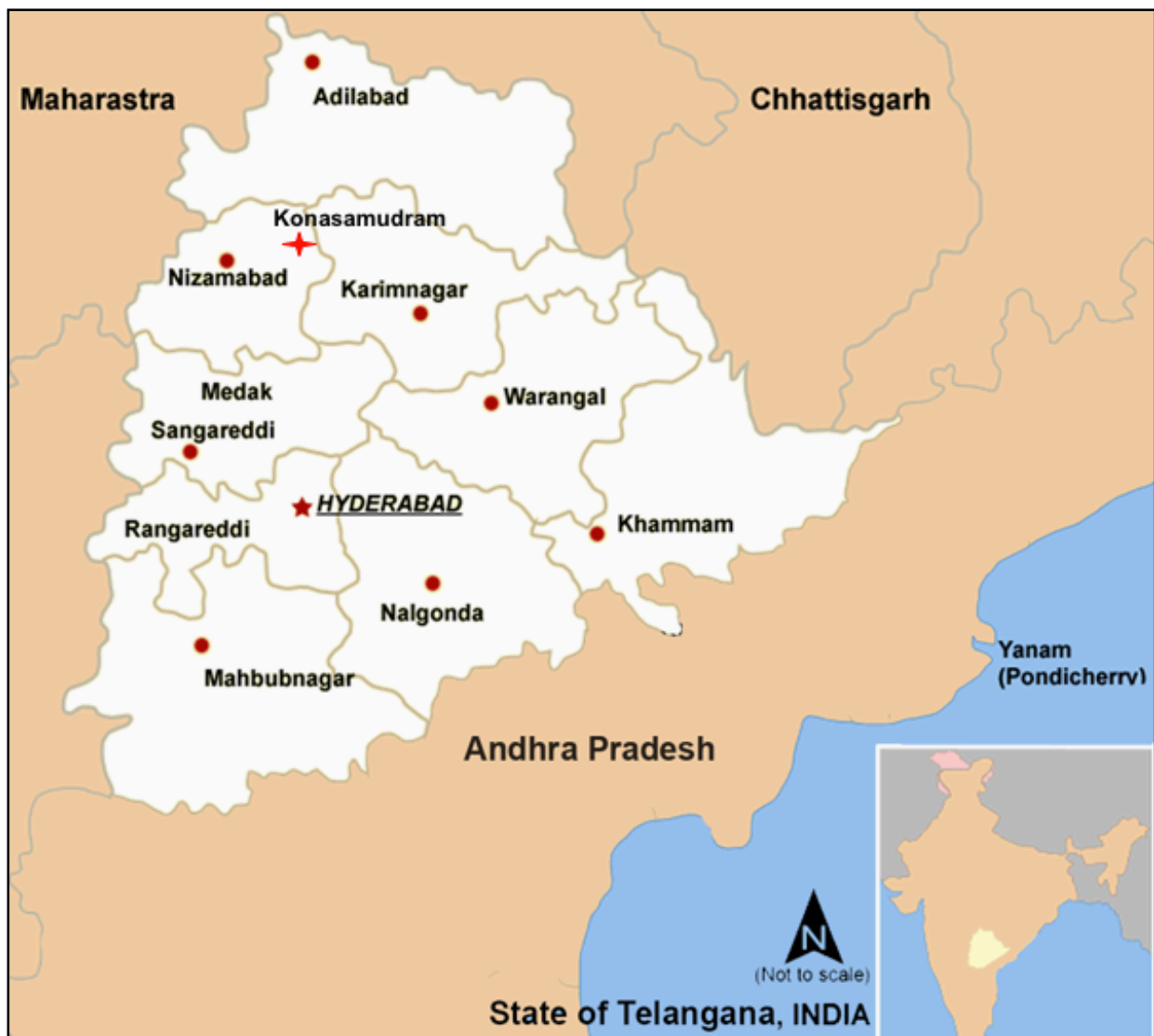
In Chapter 1 I provided a broad overview of archaeological and anthropological research of the origin and role of iron-technology in South Asia since the late 2<sup>nd</sup> millennium BC. In this chapter, I take a more regional approach. Here I will discuss the development of academic interest into pre-industrial iron and steel production in northern Telangana, the study area of this thesis. The scientific discourse on South Indian high carbon crucible steel, referred to in the academic literature as *wootz* (see 1.3.1), was already more than 200 years old, when in the 1980s, Thelma Lowe conducted her field investigation of past iron and steel producing areas of northern Telangana.

These scientific enquiries on unravelling the technology behind the production of *wootz* (see 1.3.6) sparked interest among archaeometallurgists like Thelma Lowe (1989), Sharada Srinivasan (with Ranganathan, 2004) and historians like Jaikishan (2009, 2007) to investigate the archaeological remains and historical contexts of pre-industrial iron and steel production in northern Telangana, where provenance of *wootz* have been attributed to. Lowe and Jaikishan's research will be discussed in brief in the section 2 of this chapter. Following Lowe and Jaikishan's research, the *Pioneering Metallurgy* project of 2010 conducted a reconnaissance style survey in northern Telangana in order to characterise the archaeometallurgical record of iron and steel production in the

region. In section 3, I will discuss the preliminary finds and observations of the *Pioneering Metallurgy* project, from which the present research originated. The field-survey of the *Pioneering Metallurgy* project investigated the archaeometallurgical record of iron and steel production in northern Telangana in a variety of forms, from production landscapes and sites to artefacts and technological debris by using a range of methods including field survey, ethnographic survey, morphological classification of debris and scientific analysis of materials (Juleff, 2011:7).

## **2.2 Archaeometallurgical field-research on iron and crucible steel production in northern Telangana**

The association of Telangana (Golconda/Hyderabad state) (Fig. 2.1) in South India with the production of *wootz* can be traced back in the firsthand European accounts of the 17th century. After Tavernier's initial remark on the steel from 'Golconda' (see 1.3.4), subsequent travelogues by Thevenot (1633-1667), Careri (1651-1725 AD) and Havart (c. 1650-1724 AD) recognized the special quality of the steel produced in the Telangana region. Although some attention was to the mode of manufacture, these documents, along with the official trade documents of the Dutch East India Company, were preoccupied with the volume of trade in iron and steel (Juleff et al., 2014:1031). These documents contain sporadic mentions of Konasamudram, in the Nizamabad district, as an established centre for steel production. Voysey, a surveyor for the English East India Company witnessed steel making in clay crucibles at Konasamudram and recorded its technological detail, and also observed that this steel was exported to Persia (see 1.4.1) (1832).



*Figure 2.1 Map of Telangana. Northern Telangana in this thesis comprises of the districts of Karimnagar, Adilabad, Nizamabad and Warangal. Konasamudram, a major crucible steel producing centre in the region is marked on the map. (Source: Wikipedia)*

### 2.2.1 Thelma Lowe

Thelma Lowe of University of California, Berkley carried out an archaeological investigation of pre-industrial iron and steel production in northern Telangana in the 1980s (1989, 1990, 2002). Over several seasons of fieldwork in the Nizamabad and

Adilabad districts in northern Telangana (Fig. 2.1), Lowe meticulously recorded the archaeometallurgical remains of past iron and steel production. Her work included field survey of sites (Lowe, 1989), collection and analysis of samples (Lowe, 1989, 1990), and a comprehensive background research on the historical sources on iron and steel production in Telangana (Lowe, 2002).

According to the draft manuscript report recently discovered by Juleff, Lowe had identified a total number of 74 iron-smelting sites, on 14 of which there had also been crucible steel production (Fig. 2.2). She also identified 19 possible locations for mining ferruginous laterite or magnetite ores for smelting (Fig. 2.2). In the manuscript, she classified each site based on the type of ore used, and then provided detailed descriptions of different features of the site, along with relevant historical and ethnographic data. Most of the smelting sites that used laterite ore were concentrated in the south and west of her study area (Nizamabad district), while the central and northern parts (Karimnagar and Adilabad districts) were predominantly characterized by magnetite smelting (Fig. 2.2). A majority of the crucible steel production sites appear to be associated with the former type of iron-smelting sites (Fig. 2.2)—an observation also attested by the *Pioneering Metallurgy* survey discussed below (2.3.2).

### **2.2.2 Dr. S. Jaikishan's research**

Dr. S. Jaikishan, a historian and local resident of northern Telangana has been investigating the archaeological remains of pre-industrial iron and steel production in the region since 2005 (2009, 2007). Jaikishan's interest in iron and steel technology in the



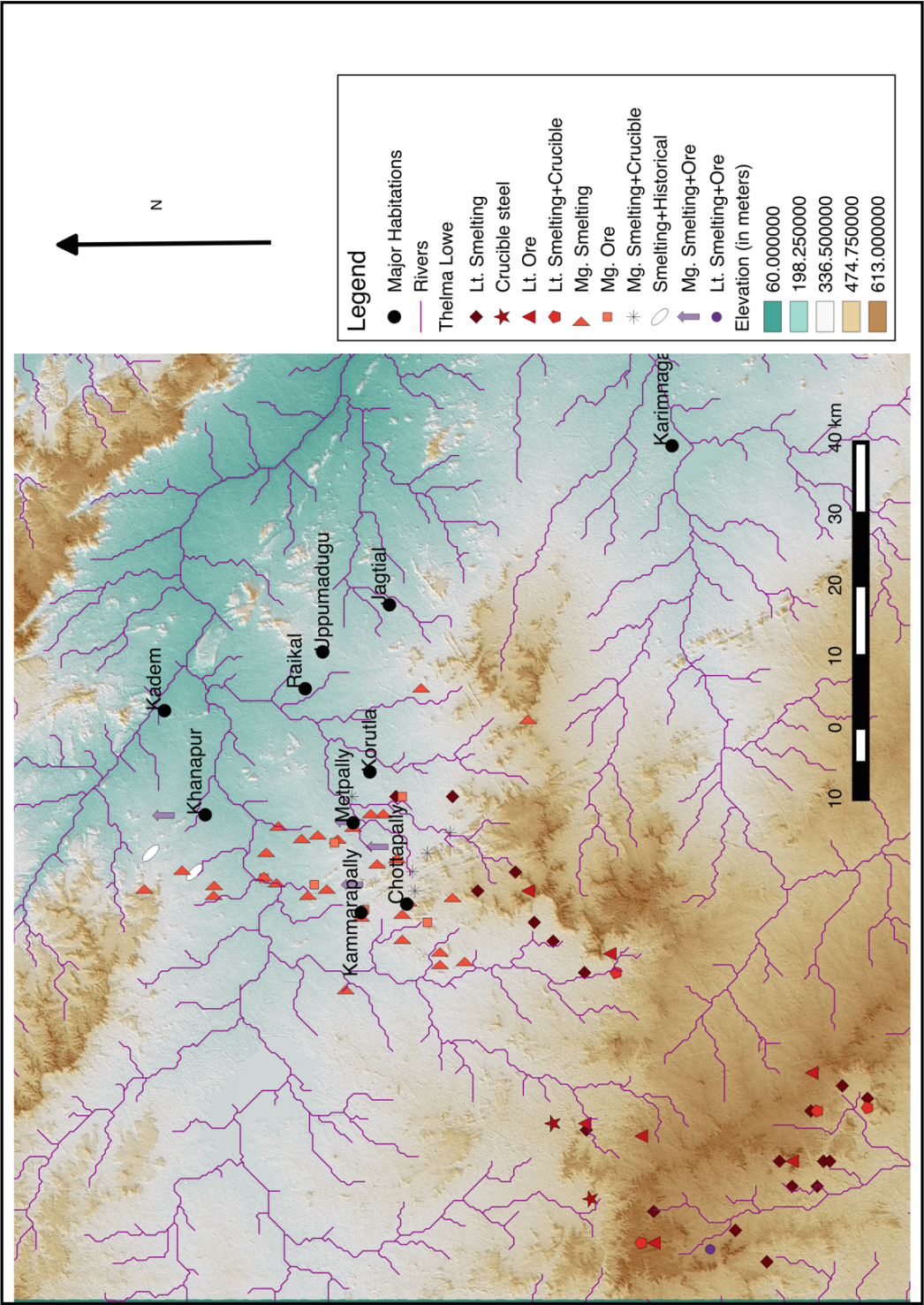


Figure 2.2 Map showing the distribution of sites by type surveyed by Thelma Lowe (Map work by T. Neogi)

region stemmed from his PhD research on Warcraft, arms, ammunitions and armour in medieval Deccan (2001).

As a part of this research project, Jaikishan has widely explored the museums, private collections, and fortresses in Telangana to document various types of armaments used in medieval warfare. This was later extended into an extensive study of medieval forge-welded cannons of the same region (2005).

From 2005, Jaikishan, with the help of Balasubhramaniam<sup>1</sup>, an eminent metallurgist widely explored the districts of Karimnagar, Adilabad, Nizamabad and Warangal in northern Telangana, and identified several villages associated with pre-industrial iron and steel production in the region (For detailed list see the Appendix in Jaikishan, 2009). Their research has also addressed the issue of the socio-economic, political and religious contexts of pre-industrial iron and steel production in the region (Jaikishan, 2007).

### **2.3 The *Pioneering Metallurgy* project**

Lowe and Jaikishan's research highlighted the magnitude and scale of diversity of past indigenous iron-working tradition of northern Telangana. The objective of the ongoing UKIERI-funded (UK-India Education and Research Initiative) *Pioneering Metallurgy* project is to facilitate a better understanding, characterization and interpretation of the archaeometallurgical landscape of the region. The following data summarizes the

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<sup>1</sup> Prof. Ramamurthy Balasubhramaniam passed away in December 2009.

detailed presentations of the preliminary results of this project in the project Interim Report (2011), and the publication of a synthesis in the ISIJ (2014).

### **2.3.1 Field-survey in 2010**

This collaborative project between the University of Exeter and NIAS (National Institute of Advanced Studies), Bangalore, from which the current research originates, conducted an extensive archaeometallurgical field-survey in the region in 2010. The reconnaissance-style survey focused primarily on a core area of c. 30 km diameter, centered on Dharmapuri in Karimnagar district and straddling both banks of the Godavari, the main river flowing west to east, bisecting northern Telangana (Juleff, 2011:8). The primary strategy was not to explore new for sites, but to visit already known sites, identified out systematic recording and sampling. The sites in this core area were also mostly by Jaikishan, to carry out systematic recording and sampling.

The sites in this core area were also afforded the opportunity to contiguous with those surveyed by Lowe in the 1980s (Fig. 2.3) and therefore expand the knowledge base for iron and steel production in northern Telangana (Juleff et al., 2014:1033). The survey was on occasion extended up to a 100 km distance from the base in Dharmapuri in order to examine specific known locations of interest like Konasamudram in Nizamabad district and Parasurampalli in Warangal district (Juleff, 2011:8).



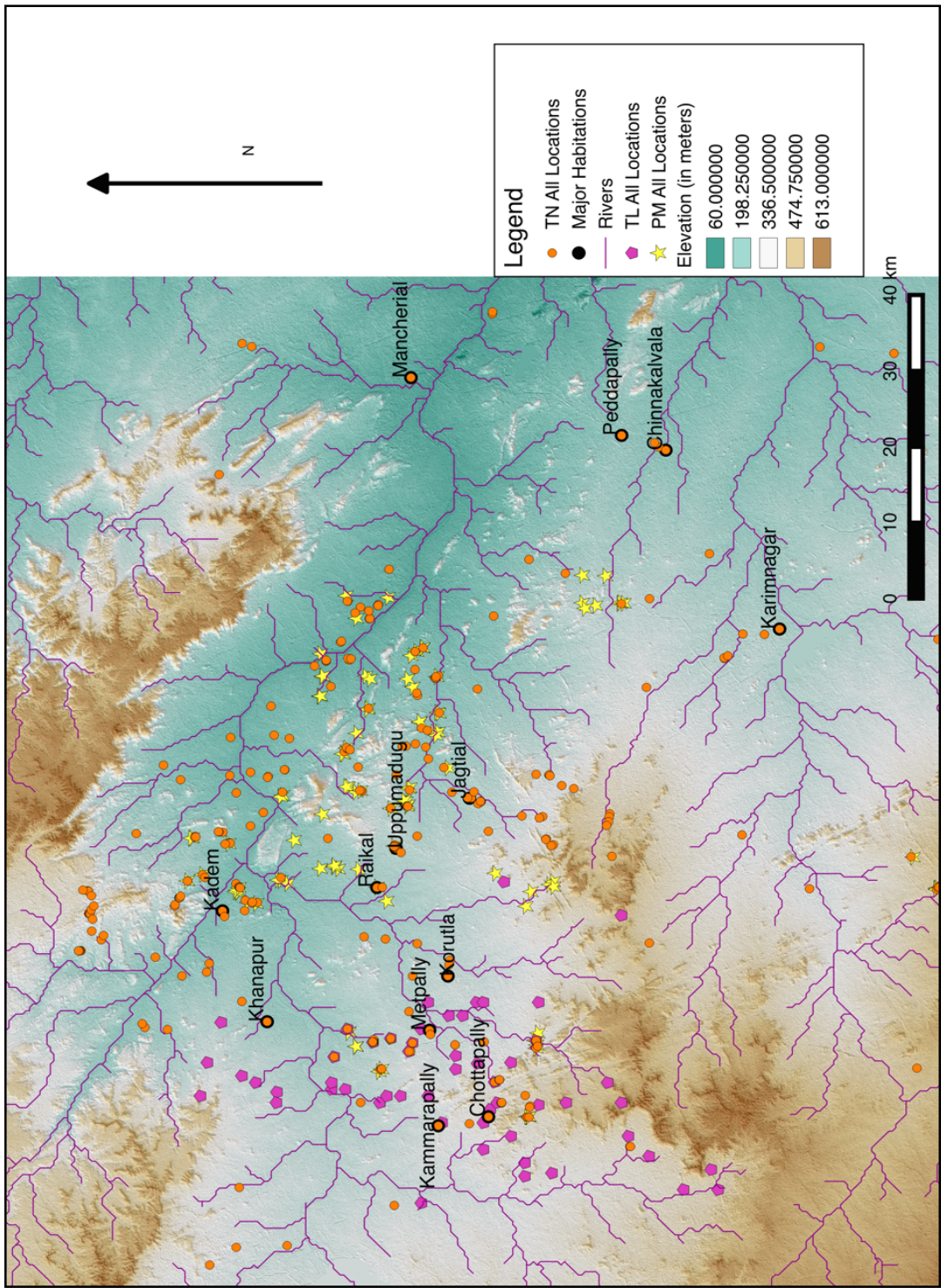
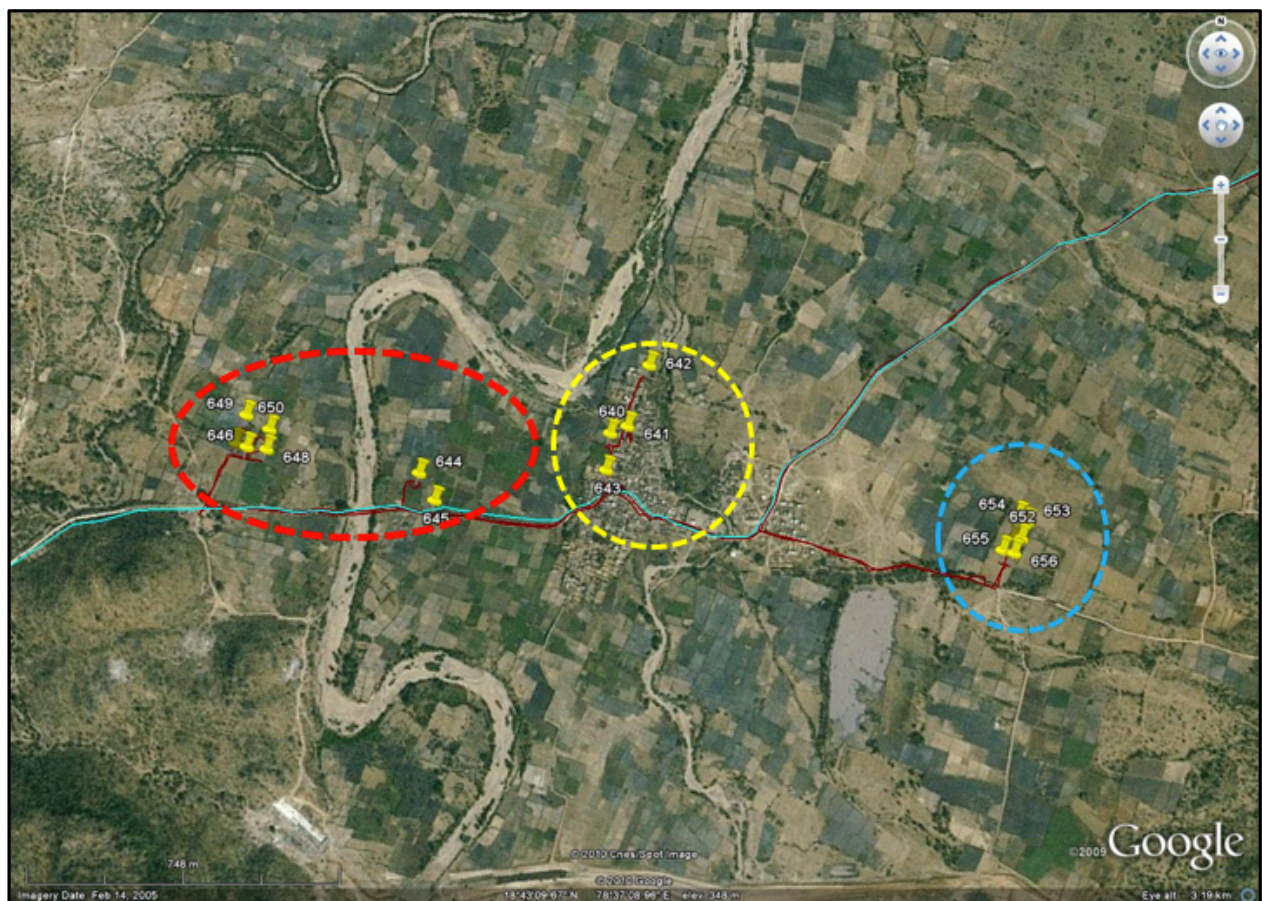


Figure 2.3 Map showing the distribution of all locations surveyed in northern Telangana by Thelma Lowe (TL), Pioneering Metallurgy (PM), and the present author (TN) (Map work by T. Neogi)



From initial results, the field survey recorded a total number of 245 'locations', of which 183 are directly associated with iron and crucible steel production. Other locations include geological features, historic settlements, temples and other structures, remnants of forts, and working smithies, interview settings and other locations with ethnometallurgical associations (Juleff et al., 2014:1034). Later, these locations were organized into 144 sites (Fig. 2.3), based on their proximity in landscape and the nature of the sites.



*Figure 2.4 Google Earth image showing location clusters organized into three distinct sites at Konasamudram (Map work: Pioneering Metallurgy Project)*

For example, in the village of Konasamudram in Nizamabad district, four locations were recorded (Fig. 2.4). Later, during analysis, these four locations were clustered to three distinct sites. While the sites in the western and eastern edges of the villages yielded evidences of iron-smelting and crucible steel production, the one in the centre of the village is associated with historical structures, such as the *Mammayee* temples and the dilapidated house of a crucible steel trader (Fig. 2.4). Although the metallurgical sites in the eastern and western edges of the village yielded similar type of evidence, these were treated as two distinct sites as they are located spatially apart from each other.

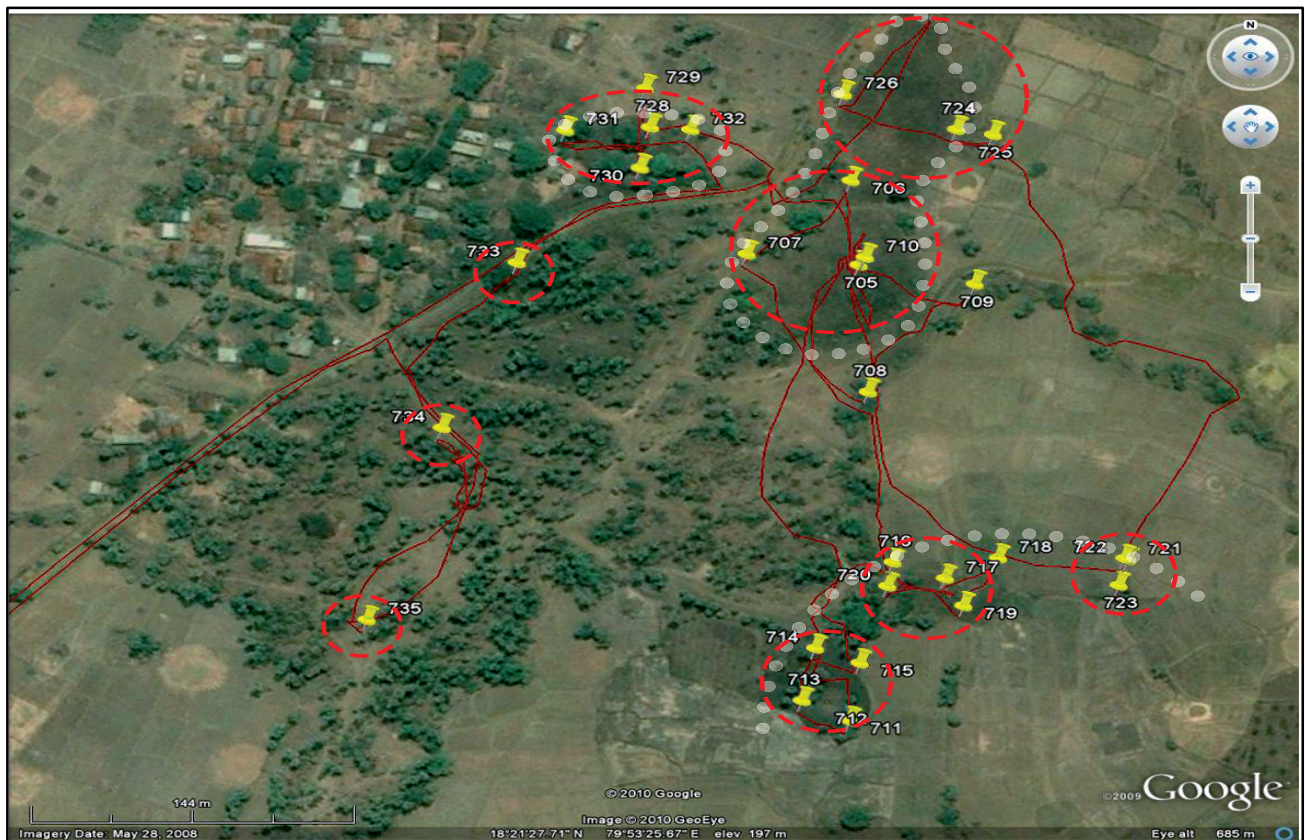


Figure 2.5 Parasurampalli (Warangal district), GPS survey traverses and locations with working interpretation of a large smelting and crucible steel complex, spatially distinct in the same landscape (Source: Juleff et al., 2014)



### 2.3.2 Preliminary observations: technology

Over 1500 kg of different types of technological debris (slag, crucible, furnace remains, tuyeres) were collected during the 2010 field-survey. From preliminary geo-spatial appraisal of the locations associated with iron and steel production, a definite distribution pattern of the sites in the landscape was identified. It was evident that a majority of the explored sites are either located in the edges of the current settlements in Karimnagar,



*Figure 2.6 Example of a coil-built furnace wall fragment collected from Buggaram (Source: Juleff et al., 2011)*

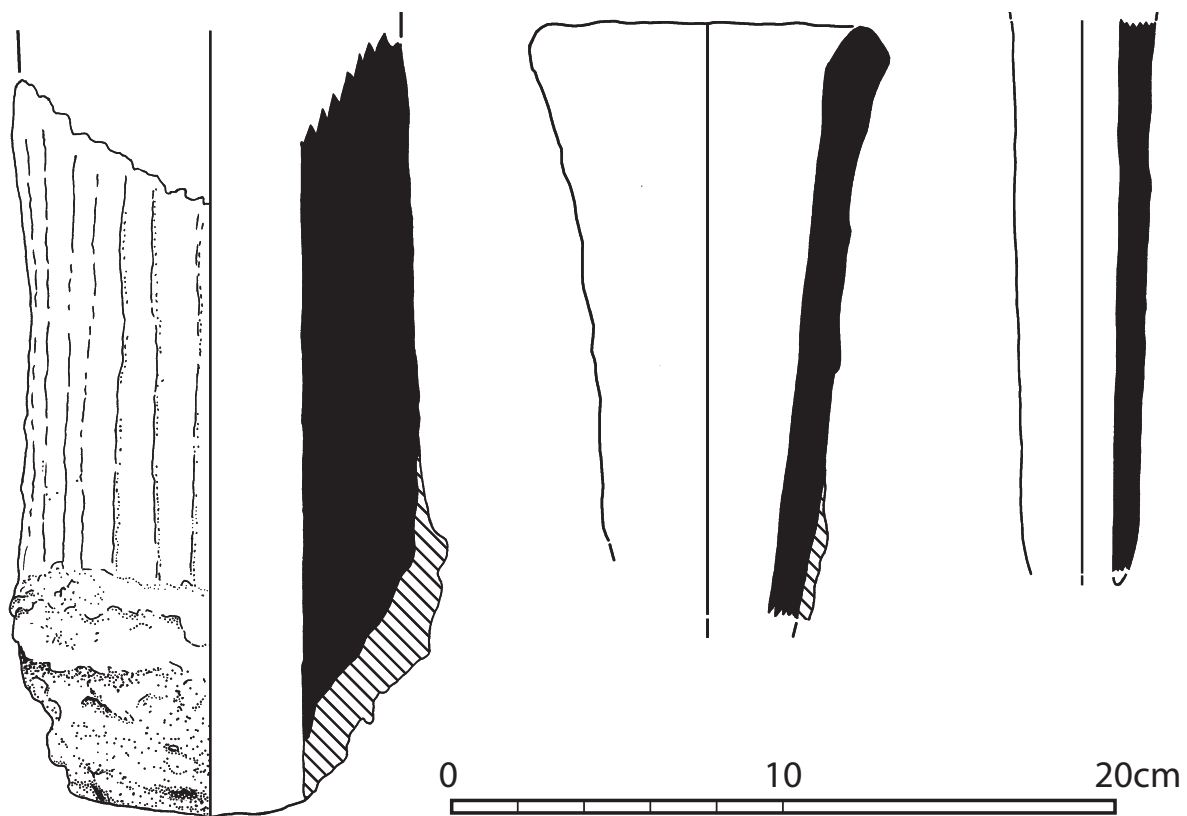
Nizamabad and Warangal districts. In Adilabad, more sites were found situated inside the Kawal Tiger Reserve. Due to their remote locations inside forests and restricted access, these sites are normally better preserved. The evidence for crucible steel production (c. 20% of the total number of sites), consistent with Lowe's observations, falls in the former settlement category. The forest sites appear to have been primarily devoted to smelting. In a majority of instances, sites associated with crucible steel production were identified in close proximity with iron-smelting sites (Fig. 2.5). For example, in Parasurampalli, a large, but heavily disturbed metallurgical site in Warangal district (Fig. 2.5), two distinct complexes were identified. A cluster of iron-smelting locations were identified towards the north of the site from a large scatter of slags and refractory materials. About a 100 meters south from this, a distinct cluster of crucible

steel production locales were identified through a significant scatter of crucibles and glassy slag. From the spatial location of these two clusters, it was evident that distinct locations for smelting and crucible steel production were intentionally assigned within the same landscape.

Apart from the close clustering of iron-smelting and steel production sites, other clusters, or, 'complexes' were identified which displayed grouping of multiple slag heaps (Juleff et al., 2014:1034-35). However, due to the difficulty in dating the sites, the exact interrelationship between the technological debris within these complexes remain open to interpretation. A post-survey macro-morphological analysis of slags collected during the survey reveal the use of slag-tapping furnaces in a majority of the sites. A few of the sites displayed the prevalence of a non-slag-tapping technology (e.g. Buggaram in Karimnagar district) (Juleff et al., 2014:1035).

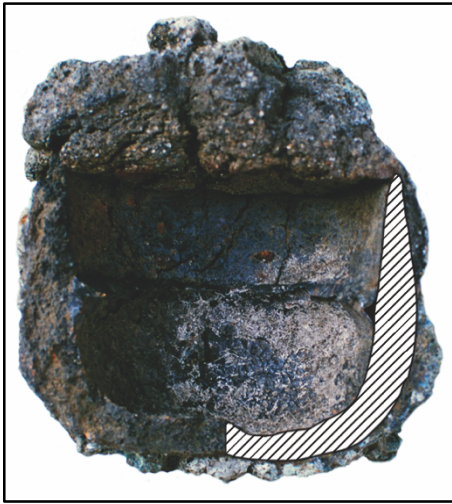
The fragments of furnaces collected during the survey point to a remarkable consistency in furnace design across the survey area. The furnaces have diameters less than 0.75 m and were constructed as semi-permanent shaft structures placed over a semi-permanent basal stone plinth. The striated impressions on the internal surfaces of the furnace fragments suggest that these were constructed by plastering clay around bundles of reed or straw. At Buggaram, and a few other sites, distinct coil-built furnace wall fragments were identified (Fig. 2.6), pointing to a different technique of construction





*Figure 2.7 Examples of three forms of tuyere identified during post-survey macro-morphological analysis (Source: Juleff et al., 2014)*

which might indicate an earlier technology (Juleff et al., 2014:1035-36). Three distinct forms of tuyere were identified in the survey. The forms are based on their size and range from exceptionally large tuyeres, through medium to very small examples (Fig. 2.7). Thick-walled large tuyeres are the smallest group identified, and they are reported



*Figure 2.8 Example of a thin-walled crucible with internal diameter of 5.5 cm (Source: Juleff et al., 2014)*

to be closely associated with the crucible sites. The medium-sized tuyeres form the predominant group in the survey area (Juleff et al., 2014:1036).

Post-survey analysis identified two distinct categories of crucibles. The first category constitute of thick-walled crucibles (3-15 cm internal diameter) with disproportionately large conical lids luted and fused

onto the crucible body. This type of crucible appears to be associated with a handful of complex sites,

like Konasamudram, where iron-smelting and steel production evidence is characterized by a greater spatial separation. The second and larger group of crucibles are more standardized, thin walled and ranging from small to medium sized examples (Juleff et al., 2014:1036) (Fig. 2.8).

The field-survey of 2010 indicated a rich and complex techno-cultural landscape characterized by different technological styles related to iron-smelting and crucible steel production in northern Telangana. The ongoing project is now exploring possibilities to facilitate a chronological understanding of the past technology through scientific dating of the sites and metallurgical analysis the collected technological debris.

### **2.3.3 Preliminary observations: ethnography**

Ethnographic study of the extant iron-working community was a discrete component of the 2010 field-survey. The aim was to record as far as possible the presence, lives and

working practices of the last generation of working rural blacksmiths and the descendants of iron-smelters. Ethnometallurgical data was gathered primarily by interviewing blacksmiths in their residences and work-spaces, but also included informal conversations with village elders, toddy-tappers and current owners of lands with technological debris. The resulting ethnographic database from the survey contains a total of 20 interviews, which include 11 interviews with traditional blacksmiths (*kammari*). Apart from this, the blacksmiths were also observed and recorded at work (Fig. 2.9), and measured sketch plans were made of their working spaces (Neogi and Jaikishan, 2011:15-16}. Following the main survey there was also an opportunity to record the annual festival of *Mammayee*, the goddess worshipped by the *Kammari* communities in some villages of the area. The ethnographic data collected during the survey teased out important details about the social and cultural context of iron-working in northern Telangana. It was observed that the blacksmiths who were interviewed identified themselves as members of the *Viswabrahmin/Viswakarma* caste group.

The *Viswabrahmin/Viswakarma* caste comprises of four other Hindu artisan-communities-- the goldsmiths, the bronze-smiths, the carpenters and the sculptors. It was understood that intermarriage is practiced between metal-craft communities, but it is not encouraged with the non-metal working groups. Inter-caste marriages are strongly discouraged, and might lead to social segregation. A strong anti-Brahmin feeling was also observed, and this was expressed by wearing the sacred thread to challenge the authority of the Brahmins in the local caste hierarchy (Neogi and Jaikishan, 2011:17}.



*Figure 2.9 Kammari at work in Shekalla (Karimnagar district) recorded during the ethnographic survey (Neogi and Jaikishan, 2011)*

It was also observed that the blacksmiths reside in close clusters within larger rural settlement, and these clusters are spatially located near the residences of the farmers. The blacksmith community in each village seemed to be stratified according to seniority, and is headed in each village by a body of elder blacksmiths whose decisions are considered unassailable (Neogi and Jaikishan, 2011:17-18).



The survey hinted at the richness and complexity of the record and highlighted possibilities for detailed ethnographic research on iron-working of the region. Some of the above preliminary observations have been refined with more long-term and in-depth field observations during the current research. Nevertheless, the observations made during this project provided the stepping-stone for the present research project.

## **2.4 Imperative for the current ethnographic research**

150 years of scientific studies on *wootz*-Damascus steel (1.3.1) highlighted the technological sophistication and advanced set of skills employed by the indigenous steel makers and blacksmiths of peninsular India. Subsequent archaeometallurgical surveys in the region by Lowe, Jaikishan and the *Pioneering Metallurgy* project recorded the remains of a thriving tradition of pre-industrial iron and steel production in the northern Telangana region (2.2 & 2.3). The geospatial and technological data collected during these surveys clearly demonstrated that crucible steel manufacturing did not exist in isolation. It was an integral part of a complex web of a local and regional production network, the functioning of which depended on successful exploitation of locally available natural resources (e.g. suitable iron ore, charcoal etc.), and the efficiency of the local iron-smelting technology (Juleff et al., 2014:1030).

The ethnographic study conducted during the *Pioneering Metallurgy* field-survey hinted at the rare possibility of adding another crucial layer of understanding to the archaeological data by incorporating the lives and memories of the extant rural blacksmiths of the region. There was a potential for detailed ethnoarchaeological research to interrogate a complex set of evolving relationships between the craft of iron-

working, the craft producers and the manifestation of this relationship in social and physical space in the context of northern Telangana. The current research addresses this objective of providing a social context to study indigenous iron-working in northern Telangana, to add a more nuanced interpretation of the archaeometallurgical record.

## CHAPTER 3

### NORTHERN TELANGANA: PHYSICAL ENVIRONMENT AND HISTORICAL PROCESSES

#### 3.1 Introduction

Primary iron-smelting is inherently dependent on the geology and environment of the region. The availability of smeltable iron ore, continuous supply of wood for charcoal and presence of clay with good refractory qualities to build smelting furnaces and tuyeres, are necessary pre-conditions required to operate an iron-smelting industry. Apart from the above pre-requisites, sustenance of the iron-smelting industry also depends on the demand for iron and iron implements in the local and trans-local markets, and the ease of movement of these commodities through various commercial networks. Since iron implements are primarily used in agriculture, existence of a stable agrarian base often accompanies a thriving iron-working tradition.

Agricultural productivity depends on several geophysical, environmental, socio-economic and political variables. It primarily depends on the availability of water through rainfall, or in the arid and semi-arid regions, through the construction and maintenance of a complex network of reservoirs, tanks and irrigation canals. The stability of commercial networks and the agrarian foundation can also indicate the presence of some form of political power with the ability to consume, mobilize and redistribute local resources.

The purpose of this chapter is to characterize various geophysical and environmental factors that influenced cultural, economic and political formations in northern Telangana since the Early Historic period. This is done to situate the study area in the broader historical context of the region. I do not subscribe to the idea of environmental determinism. What I argue is that environmental variables such as rainfall, geology and physiography of northern Telangana played a crucial role in influencing historical processes of the region. But this influence was never unidirectional. Throughout the span of pre-colonial history, the people of northern Telangana made conscious decisions and employed strategies to transform a semi-arid, densely forested terrain into a stable agrarian landscape. This complex historical process formed social identities, which prioritized kinship over caste, a phenomenon still discernible in the region.

The first section (3.2) will describe several variables of the natural environment of northern Telangana. After situating the Telangana region in the broader geographical context of the Deccan plateau, the rest of this section will discuss different environmental factors like topographical profile, iron ore deposits, rainfall, river and forests of northern Telangana. I will comment on how these factors influenced social formations and created conditions for a sustained pre-industrial iron-smelting and steel making tradition in the region.

Section 3.3 is a brief description of the current human geography of the northern Telangana region and 3.4 presents a brief overview of the pre-colonial historical processes of the region. Based on the archaeological evidence of various historical



periods obtained from different parts of northern Telangana, I will discuss historical social and cultural processes in the region. Starting from sporadic pastoral megalithic tomb building cultures, several pockets of urban settlements developed in northern Telangana in the Early Historic period (c. 2<sup>nd</sup> century BC onwards). This was followed by a period of interlude between the 2<sup>nd</sup> century and 8<sup>th</sup> century AD when northern Telangana remained a sparsely populated semi-arid frontier zone under several major South Indian powers. However, from 9<sup>th</sup> century AD onwards northern Telangana was incorporated within the Western Chalukyan political and ideological sphere. Based on inscriptional evidence from Karimnagar, I will show that this period saw the local chiefs undertake pioneering initiatives to expand their agrarian hinterland by harnessing and distributing rainwater through a network of irrigation canals and tanks. These efforts proliferated during the succeeding Kakatiya period, when Karimnagar and Nizamabad served as the administrative core of Kakatiya political authority. Previous research on Kakatiya society in Telangana, most notably by Talbot (2001) showed that several social and ideological identities created in this period served as the foundation for later social formations in the Telangana region.

### **3.2 Physical environment**

Telangana (Fig 3.1) is a discrete cultural region in south-central India situated in the northern part of the Deccan plateau. The Deccan plateau covers a total area of 7,005,000 sq km in between the Western Ghats and the Eastern Ghats mountain ranges, and can be divided into diverse geographical zones based on topography, geology and environment. Telangana is a continuation of the Maidan section of the

Deccan plateau, which falls in the adjacent state of Karnataka, a region with abundant iron ore deposits that supported a rich tradition of iron-smelting.

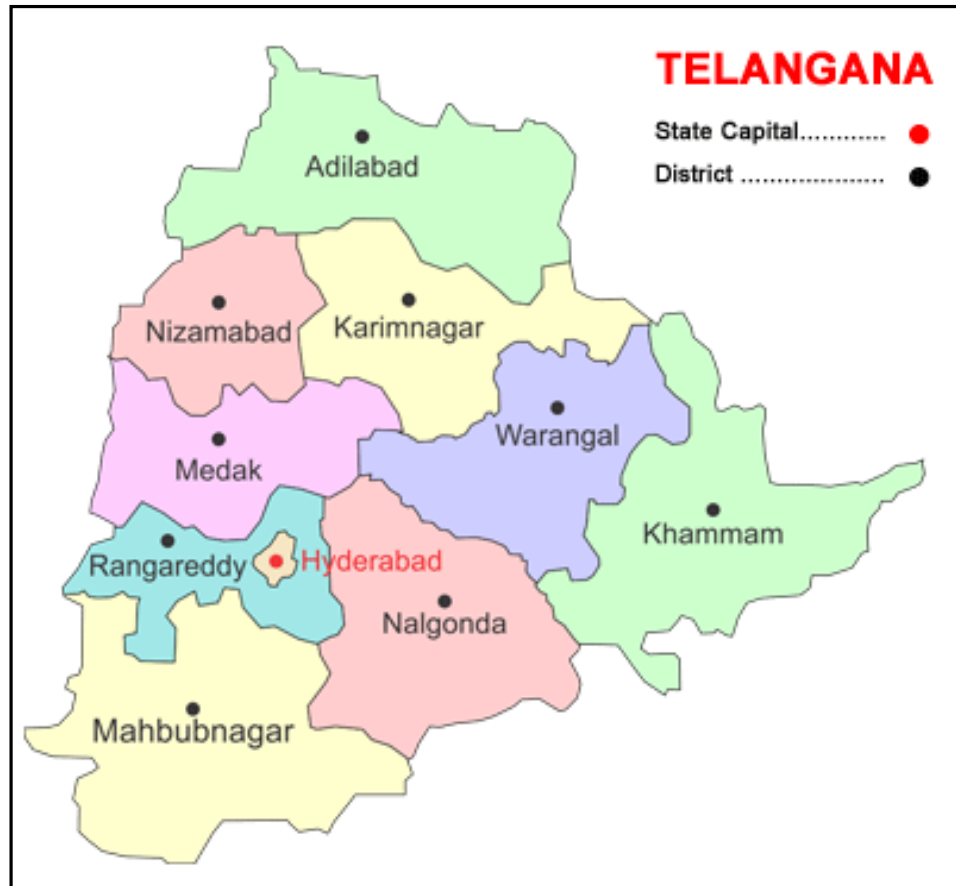
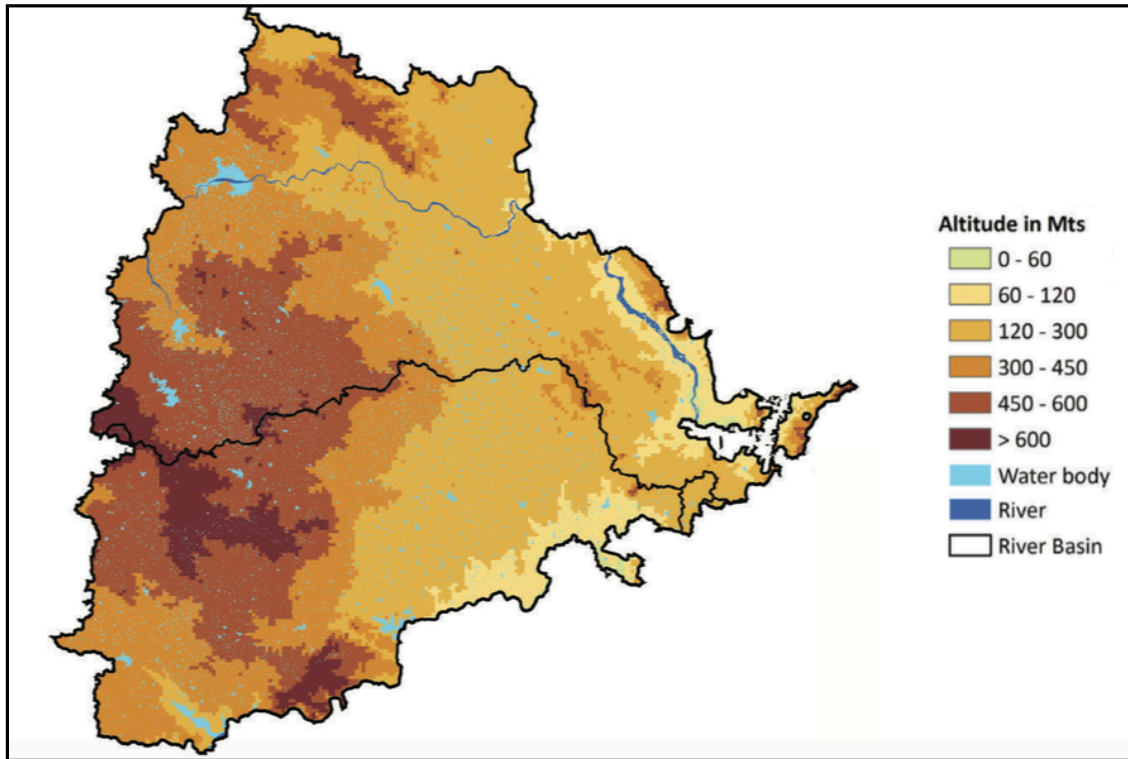


Figure 3.1 Map of Telangana state (Source: <http://www.districtsofindia.com/>)

Politically, the Telangana region was a part of the Indian state of Andhra Pradesh since the latter's creation in 1956, until 2014. After a prolonged political struggle for individual statehood, the new states of Telangana and Seemandhra (includes coastal Andhra and Rayalseema regions) were created in June 2014, bifurcating Andhra Pradesh. Northern Telangana, when used in the current thesis indicates an area situated on the northern

boundary of this new state comprising of the districts of Adilabad, Karimnagar, Nizamabad, and Warangal (Fig. 3.1).



*Figure 3.2 Map showing the topographic profile of Telangana (Telangana, 2014)*

### 3.2.1 Topographic profile

The gentle eastward slope of the Deccan plateau characterizes the topographical profile of Telangana. Traversing east, the elevation gently reduces from approximately 700 to 60 msl (Fig. 3.2). The area is interspersed with discontinuous ranges of low hills made up of granitic or basaltic rocks (Talbot, 2001). The study area in upper Karimnagar and central and lower Adilabad districts is characterized by these irregular low hills (between 400-600 meters), which provided shelters for pre-historic hunter-gatherer populations. Numerous granite outcrops in the low hills of the study area must have been exploited

by the Iron Age communities to quarry stones for building megalithic burials. The natural caves in many of these hill faces may have also provided shelter for the prehistoric communities. This is evidenced locations of several megalithic burial sites (e.g. Kadambapur, Dacharam) and Early Historic habitation sites (e.g. Peddabonkur, Dhulikatta, Gangadhara etc.) in the valleys adjacent to the low hills, not far from the tributaries of the Godavari river. From at least the medieval period, water from numerous seasonal streams rising from these hills during the monsoon has been used to irrigate the agrarian hinterland of the political core in this semi-arid region (Fig. 3.7).

### **3.2.2 Iron ore**

The granitic and basaltic rocks of these hills in Telangana host a wide range of minerals, including significant deposits of iron ore (Fig. 3.3) (for discussion on other minerals see Phani, 2014). In northern Telangana the primary deposits of iron ore are present in the form of large isolated outcrops of banded magnetite, which can be weathered into fine magnetite sand, black in colour. The hard-capped lateritic deposits of weathered granitic gneisses constitute the second major deposit of iron-ore in the area (Phani, 2014:15452). The range of hills in central Adilabad, and more dispersed hills in northern Karimnagar host the banded magnetite formations, whereas the lateritic formations are more frequent in the hills of Nizamabad and Medak, towards the west and south of the study area.

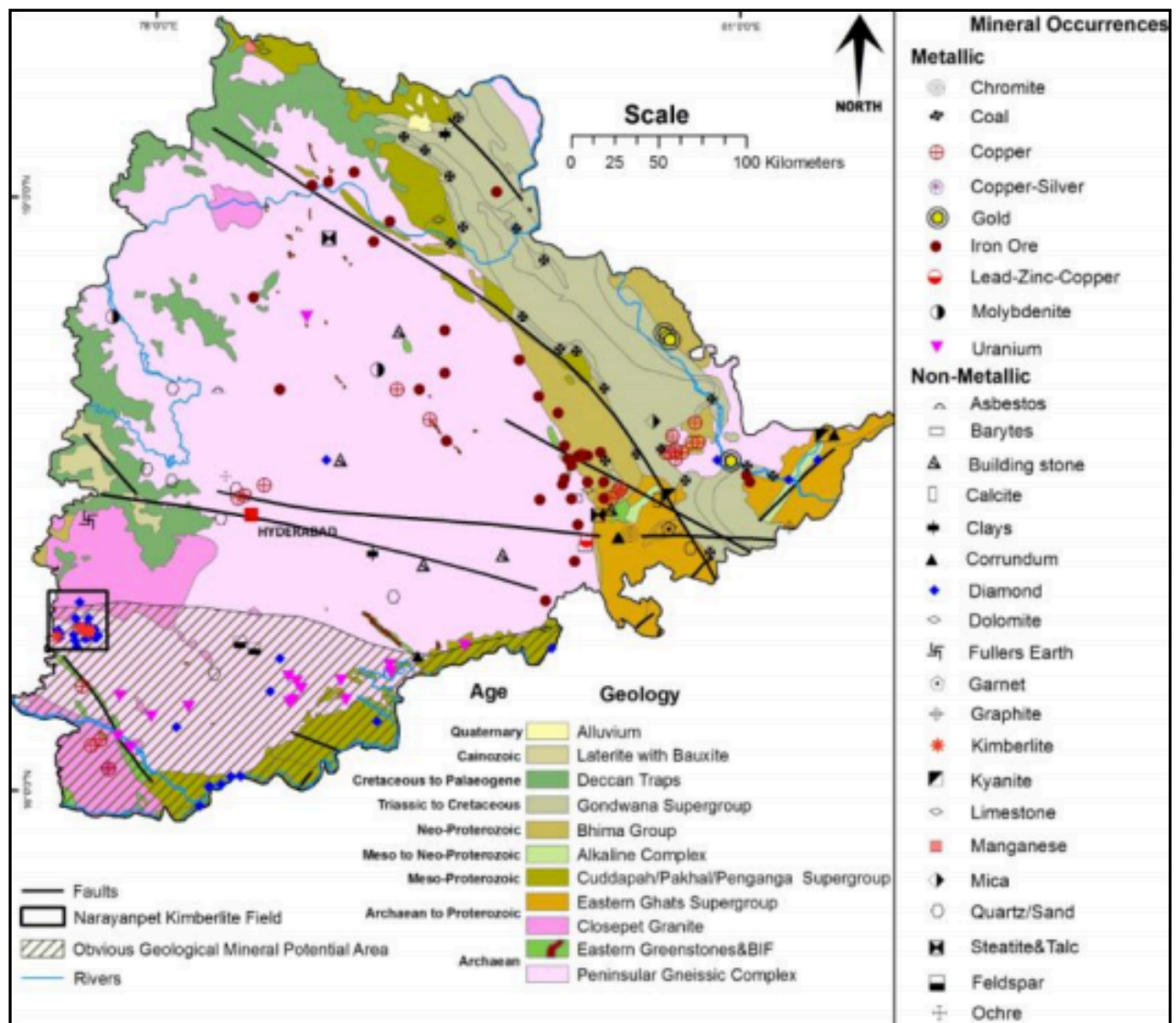


Figure 3.3 Map showing the distribution of geology and mineral occurrences in Telangana (Phani, 2014)

Ethnographic information collected during the current project suggests that both types of ores were collected from the surface, and deep mining was not required. In a recent publication Phani (2014:15452) estimated that the total magnetite iron ore deposit in this area of northern Telangana amounts to 16 million tonnes.

### **3.2.3 Climate**

Telangana is situated in a semi-arid zone, receiving an average of 939 mm of rainfall per year (Data, 2015). The amount of rainfall varies widely across different geographical zones (Fig. 3.4). This is reflected on the agrarian productivity, and had significantly influenced the socio-economic and political formations in the past. Mahbubnagar, parts of Nalgonda and Rangareddy-Hyderabad districts are the driest districts of the state with an average annual precipitation of less than 800 mm. The rest of Nalgonda, and Rangareddy-Hyderabad, along with parts of Karimnagar, Warangal, Nizamabad, Khammam and Medak, get a moderate annual rainfall between 800 to 1000 mm. The wettest area of Telangana, receiving an annual average rainfall between 1000 and 1500 mm, comprises an arc covering the area of northern parts Karimnagar, Warangal and Khammam, and most areas in Adilabad and Nizamabad districts (Fig. 3.4).

A majority of the precipitation occurs between the months of June and September during the South-West Monsoon. The retreating North-East Monsoon causes only sporadic rainfall between December and February. June to October is therefore the main agricultural season, when irrigated crops like rice and various kinds of pulses and sugarcane are cultivated.

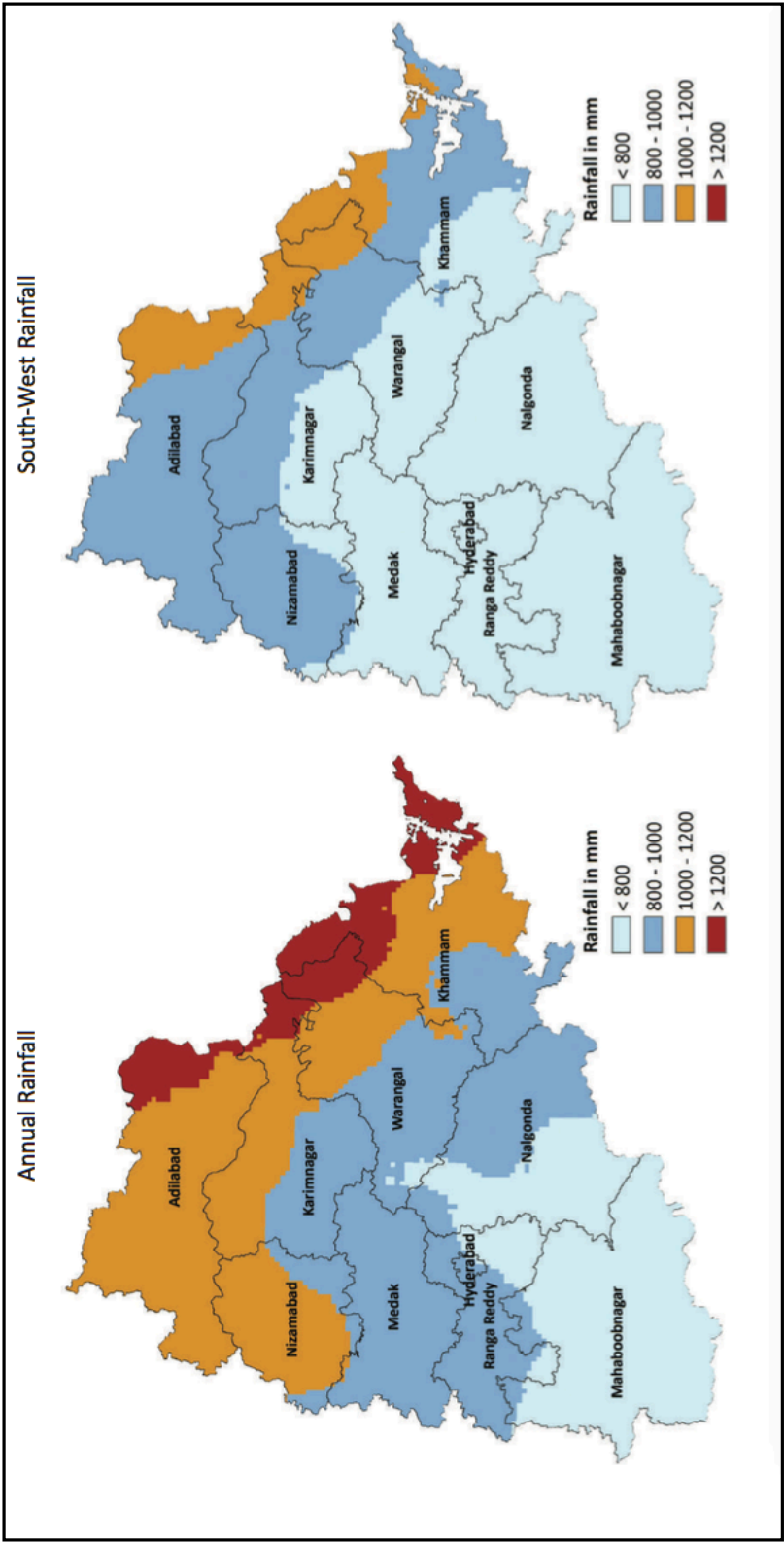


Figure 3.4 Maps showing average annual rainfall (left) and average rainfall caused by South-West Monsoon (right) (Telangana, 2014)



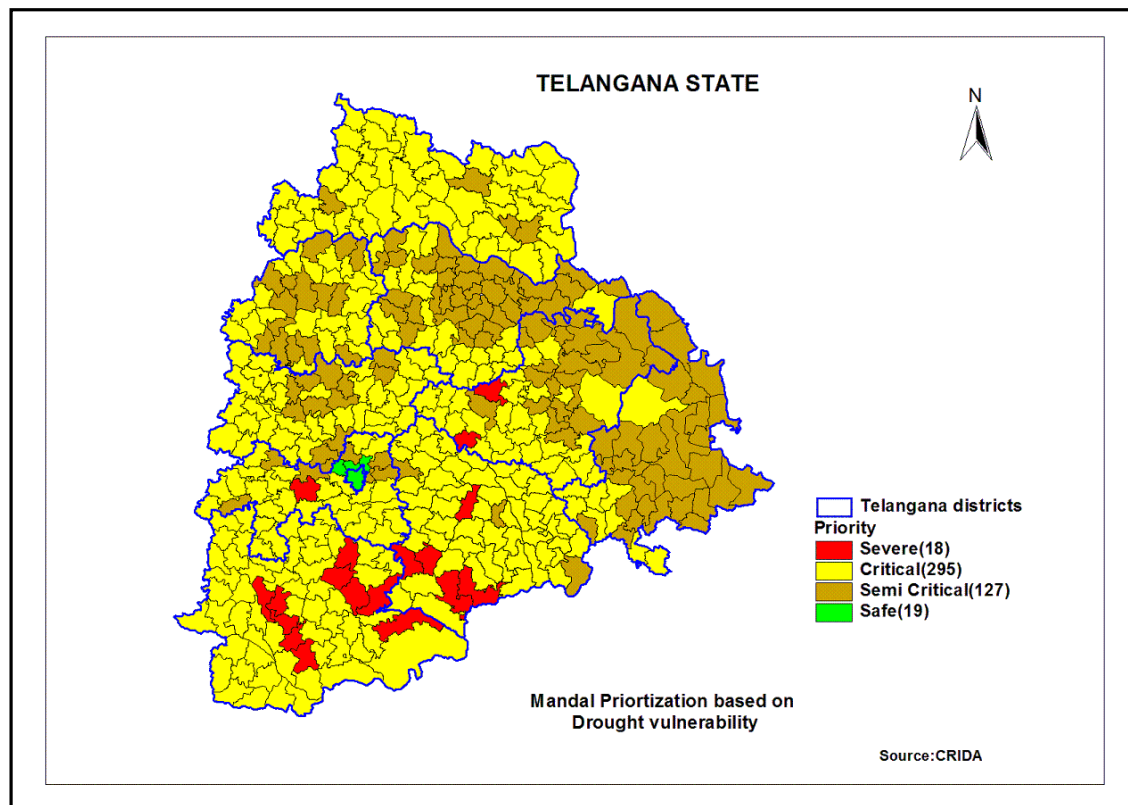


Figure 3.5 Map showing mandal-wise distribution of drought vulnerability areas in Telangana (Telangana, 2014)

This is also the peak season for iron-working. For the *Kammari* communities (village blacksmiths), June till October is still the busiest period of the year. They forge and repair various agricultural implements for the farmers as a part of a prestation agreement regulated by local customs.

However, Telangana experiences large-scale fluctuation in the force of the South-West Monsoon, which can lead to drought conditions. Approximately 64% of the *mandals*<sup>2</sup> in Telangana are evaluated as ‘critical’ in terms of drought vulnerability, including a majority of the *mandals* in the study area (Fig 3.5). The Imperial Gazetteer of

<sup>2</sup> *Mandal* is a local administrative unit constituting a town and surrounding villages, with the town as headquarters.



Hyderabad State records a series of famines caused by drought in the Nizam's dominion in the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup> centuries (Khan, 1909:48-49). Elgandal district (modern Karimnagar) experienced only half the amount of the average normal rainfall (381 mm) in 1881 and 1900, which caused widespread famine and demographic displacement in the district (Khan, 1909:177). Drought induced famines have been cited as one of the major reasons behind the movement of rural artisan communities in the pre-colonial landscape of South India (Ramaswamy, 1985, 2004, Talbot, 2001, Parthasarathi, 2001). In his study of the socio-economic transformation experienced by the weaving community in early colonial South India, Parthasarathi (2001) argues that such relocations were common among the artisan communities in the pre-colonial period, until the British colonial authorities deliberately checked such migrations by closely monitoring their movements, and forcing them to remain in their villages even during the periods of extreme drought. This deliberate mechanism of 'fixing' people to their 'respective villages' created the ontological structure of a frozen and unchanging Indian rural society that has dominated Western academic imagination ever since (Irschick, 1994). As I will explain later, both the myths and the nature of *inti-peru* (house name/surname in its modern usage) of the *Kammari* and the *Mudda Kammari*, which are two integral elements of iron-worker identity in northern Telangana, are indicative of these past migrations.

My study area along the Godavari river valley of north-eastern Karimnagar and southern Adilabad districts receives an average annual rainfall of 1000-1200mm of annual rainfall, 83% of which is caused by the South-West Monsoon. Apart from supporting the irrigation system and agriculture, monsoon precipitation causes the seasonal streams

to wash down significant amounts of magnetite sand (*wuske*) from the low hills after each shower. Ethnographic research conducted during the current project indicates that the *Mudda Kammari* exploited the rich sediments of *wuske* from the streambeds to collect the magnetite ore for smelting (see 7.2 & 7.3). Therefore, geospatially a majority of the magnetite iron-smelting sites in Adilabad and Karimnagar are found concentrated in this area. Clusters of *Mudda Kammari* families still reside in small hamlets dispersed along these seasonal streams.

### 3.2.4 Water bodies

Unlike the glacier-fed perennial rivers of north India, the rivers in peninsular India are dependent on the annual monsoon rains. However, the paucity of rainfall in Telangana means that most local rivers and streams are only active during the rains. The Godavari, which bisects the study area in northern Telangana and the Krishna, which delineates the southern boundary of the state, are the only two perennial rivers that flow through the region (Fig. 3.6). Proximity to a constant source of water is essential for a stable agrarian base, which in turn is the ultimate support of the communities of blacksmiths and carpenters, whose services are regularly required by the farming community.

The valleys of these two rivers, especially the latter, are the most fertile zones of Telangana. These rivers deposit a black soil with high clay content that can retain moisture over long periods.

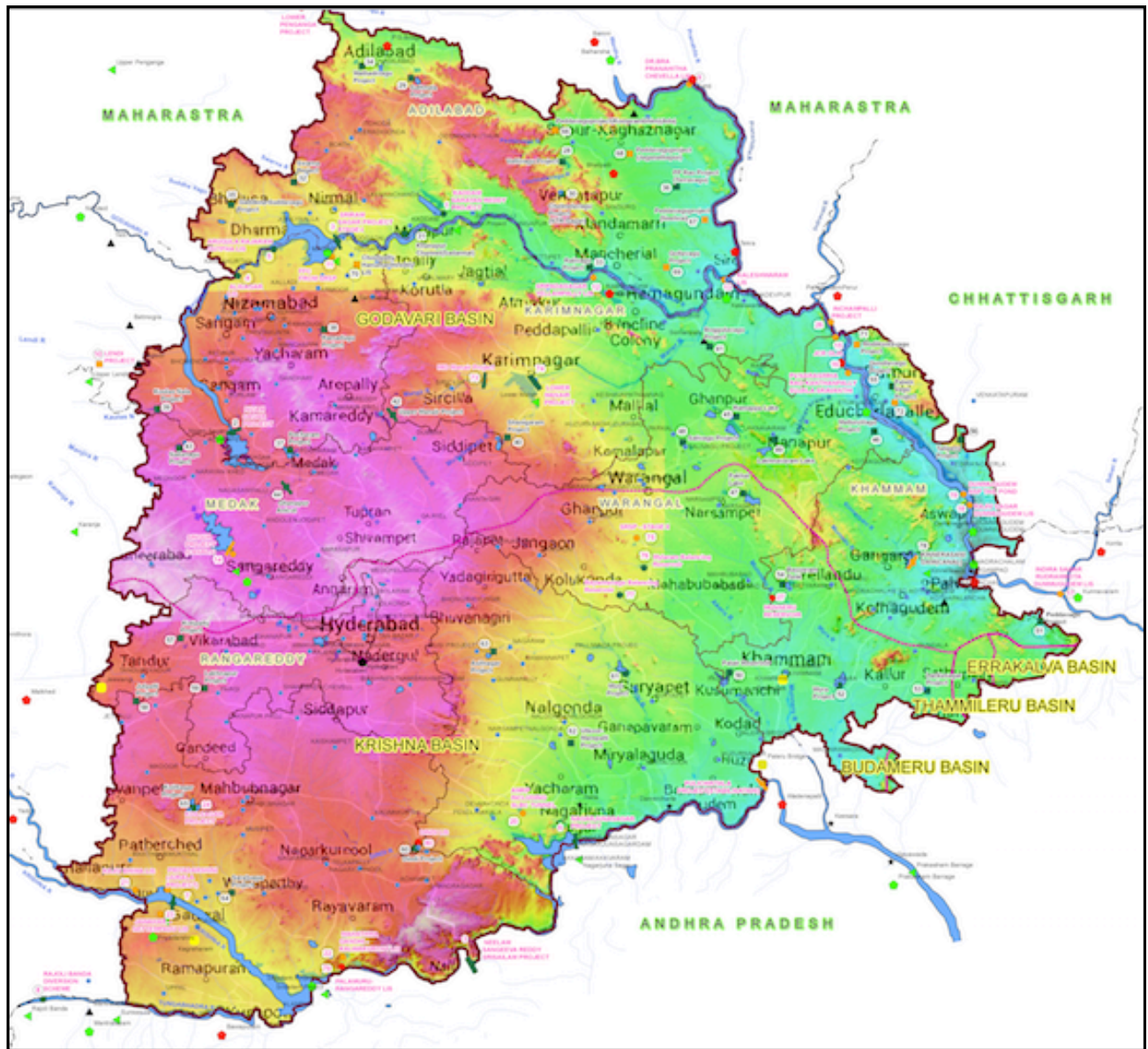


Figure 3.6 Map showing the Godavari and Krishna basin in Telangana (Telangana, 2014)



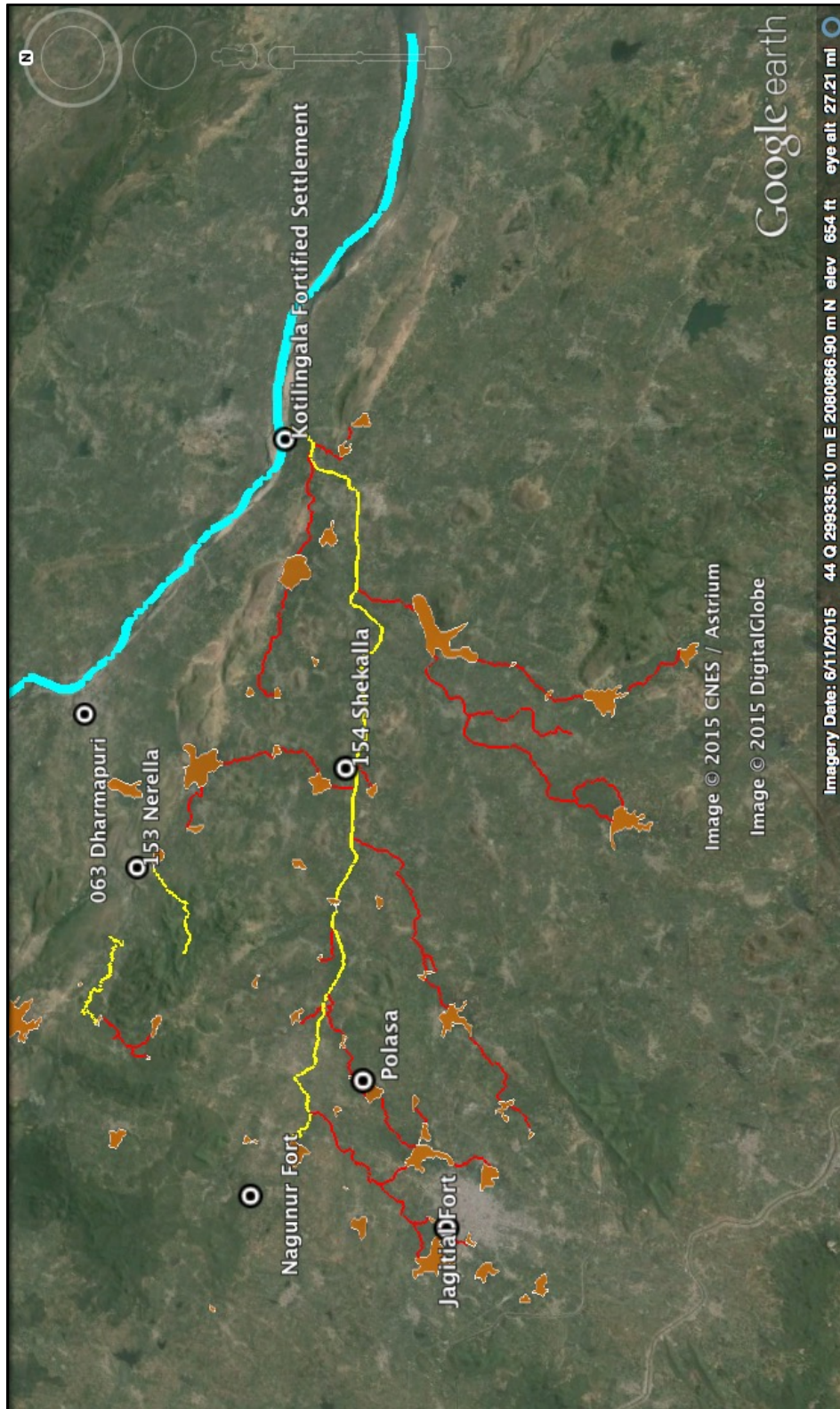


Figure 3.7 Google Earth image showing a small fraction of the network of old reservoirs, tanks and canals in the study area in Karimnagar district (Map work by T. Neogi)

This black soil supports cotton cultivation without the need for irrigation (Talbot, 2001:22) in northern Karimnagar and southern Adilabad in the Godavari river valley in and several places along the Krishna valley. The Godavari and Krishna deltas in coastal Andhra (in Seemandhra) are the most fertile areas in the region. As a result, all major political powers, until the Kakatiya period in the 12<sup>th</sup> century, were based in this part of Andhra. This area remains the most prosperous and densely populated zone in the Telugu linguistic region.

Historically, therefore, agriculture in Telangana has been significantly dependent on the efficiency of harnessing and distributing rainwater through a network of irrigation canals. Northern Telangana remained a sparsely populated, forested frontier zone until the Kakatiya period of the 12<sup>th</sup> century. The Kakatiyas were the first major political power which had its roots in northern Telangana. Based in their capital cities, first at Hanamkonda (in Warangal district) and later from Warangal (mod. Warangal city), the Kakatiya political and economic power crucially depended on the presence of a stable agrarian hinterland. This led to the expansion of the agrarian base through forest clearance and establishment of new agrarian settlements and, more crucially, the ability to harness and distribute rainwater through a complex system of interconnected reservoirs<sup>3</sup>, canals and tanks. These medieval reservoirs, tanks (*cheruvu*) and canals (*vagu*) still characterise the rural landscape of northern Telangana (Fig 3.7).

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<sup>3</sup> A distinction is made here between reservoirs and tanks. In this thesis, reservoirs are large, sometimes man made, but often natural depressions in the landscape, in the immediate valley of the low hills used to collect rainwater from the hills. These reservoirs then distributed this water through irrigation canals to a number of small village tanks.

Karimnagar and Warangal remain most well irrigated districts in Telangana (Fig 3.8), where the modern canal system uses many of these old reservoirs and canals to source and distribute excess rainwater during the agricultural seasons.

According to the Imperial Gazetteer of Hyderabad State, Elgandal, as Karimnagar district was known under the Nizam, was one of the best-irrigated districts in the Nizam's dominion. Approximately 183 square miles (47396.8 ha) of area was under irrigation in 1909 (Khan, 1909:179). The Gazetteer credited Elgandal's general immunity to drought and famine caused by the heavy fluctuation in monsoon rains, "to its numerous tanks and wells and large forest tracts [to the north and west]" (1909:180).

This irrigation network supports bi-annual harvests of rice in Karimnagar and Warangal. The Godavari valley of Adilabad and Karimnagar produces good quantity of cotton, an important commercial crop in the study area. The comparatively drier and ill-irrigated areas of northern Telangana produces maize, wheat, chilli, pulses and local vegetables.

### 3.2.5 Forests

Abundant supply of wood for charcoal is essential to sustain traditional iron and steel production. Compared to the central and western Karimnagar, Nizamabad, Adilabad, Warangal and Khammam receives a higher amount of precipitation to support patches of forests along the Godavari river valley, interspersed with small agrarian settlements (Fig. 3.9). These forests are mainly constituted of teak (*Tectona grandis*)<sup>4</sup>, ebony

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<sup>4</sup> All local plant names used in this thesis are collected from the interlocutors in the study area. These local names were later correlated with their botanical names via [www.flowersofindia.net](http://www.flowersofindia.net)

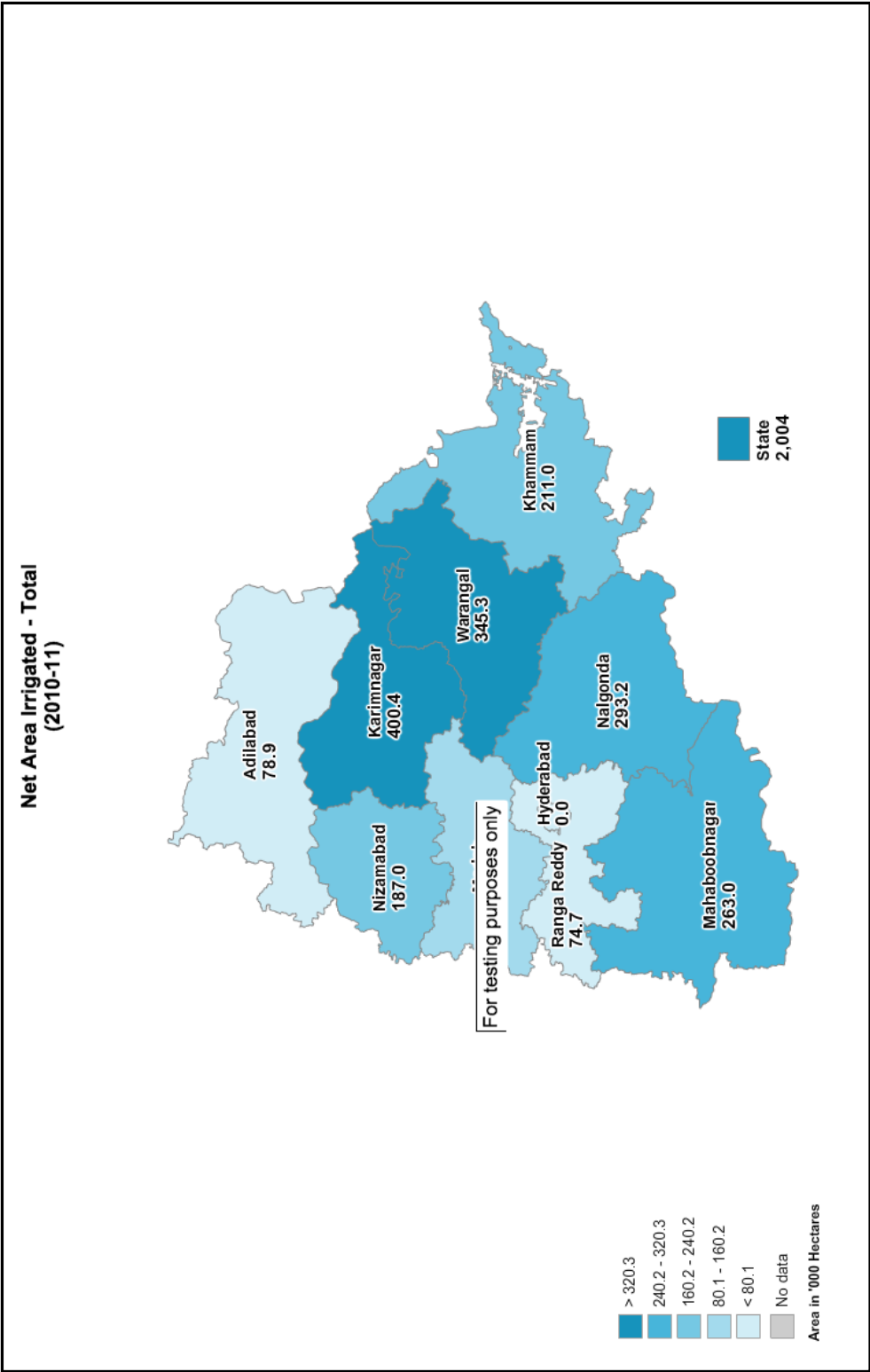


Figure 3.8 Map showing net irrigated area per district in Telangana (Source: <http://www.tsdp.telangana.gov.in/>)

(*Diospyros melanoxylon*), rosewood (*Dalbergia sissoo*) and *Sandra* (*Acacia catechu*) trees. Teak provides good timber for construction of the village huts, the leaves of the tree are used by the local tribal community as roofing material for their houses. The teak leaves are also used to weave plates and bowls to carry food, as well as for wrapping tobacco for making *bidi* (a local cigarette)—an important cottage industry in the region. Timber from ebony and teak are generally used for manufacturing furniture, doors and windows. Due to its good thermodynamic quality, timber from *Sandra* is preferred for firewood for cooking, and the charcoal made from it is preferred by the local blacksmiths for their hearths.

Ethnographic interactions with the elder members of the *Mudda Kammari* community suggests that the smelters used wood from *Sandra* tree to prepare charcoal for in smelting iron. Charcoal made of *Sandra* wood was preferred for its ability to generate high amount of heat required to smelt the magnetite sand (7.3). As I will discuss later (9.2), difficulty in exploiting *Sandra* wood owing to the strict imposition of colonial forest regulations by the Nizam's government since the 1860s played a major role in the decline of the local iron and steel manufacturing tradition.

The semi-arid climate of the region also supports the growth of a leguminous shrubs locally known as *Tyangedu* (*Senna auriculata*). Apart from its various traditional medicinal usage in Telangana and Karnataka, the wood from this plant was also used in manufacturing high-carbon crucible steel. Buchanan (1829) observed the process in Mysore region of Karnataka in the early 19<sup>th</sup> cen The crucibles are made in a conical form, of unbaked clay mixed with husks of rice



well incorporated together, and each would contain about a pint of water. In each is put one-third of a wedge of iron, with three rupees weight (five hundred and thirty-one grains) of the stem of the *tyangada* or *cassia* [*Senna*] *auriculata*, and two green leaves of the *hunginay*...

(Buchanan, 1829:10-11)

Although the technology of crucible steel making has passed beyond living memory among the iron-working communities of northern Telangana, the natural occurrence of this plant in the crucible steel landscape might indicate a similar usage in the production process.

### 3.3 Human environment

Dispersed agrarian villages with mixed occupation groups primarily characterize the human environment of the Telangana region. According to the 2011 Census of India, 61.3% of the total population of Telangana (35.19 million) live in villages (Fig. 3.10). The rural agrarian landscape is interspersed with urban and semi-urban settlements, which serve as the district or *mandal* headquarters. Built environment (settlements, industries and mines) constitute only 3.82% of the total area of the state (Fig. 3.9). Karimnagar has the highest population (3.78 million) of the four districts of northern Telangana, followed by Warangal (3.51 million), Adilabad (2.74 million) and Nizamabad (2.55 million). An overwhelming majority (73.9%) of the population in northern Telangana live in villages. Due to absence of dense forests and the presence of good irrigation network that supports comparatively higher agricultural yield, the population of Karimnagar and

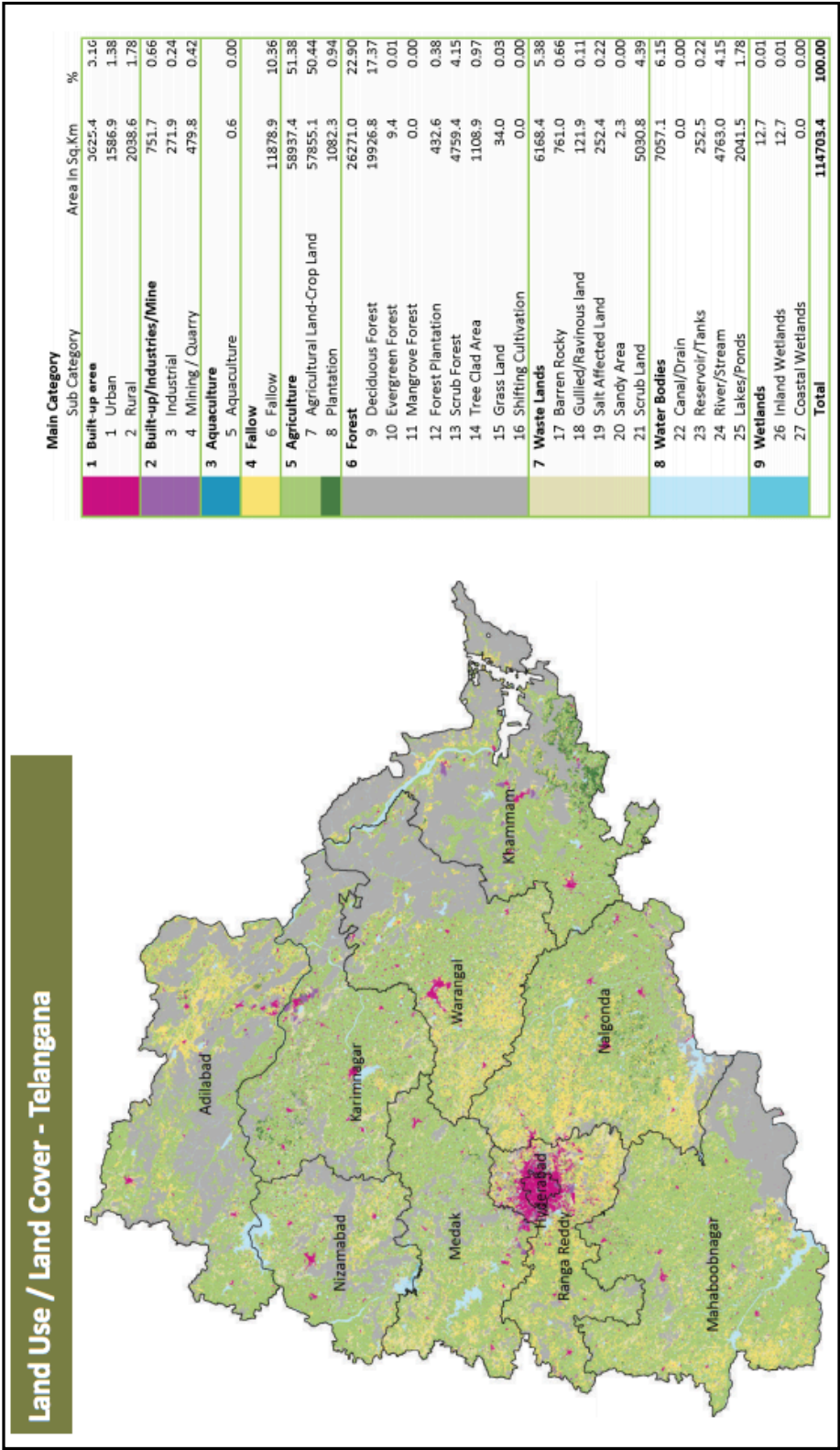


Figure 3.9 Map showing land-use pattern in Telangana (Telangana, 2014)

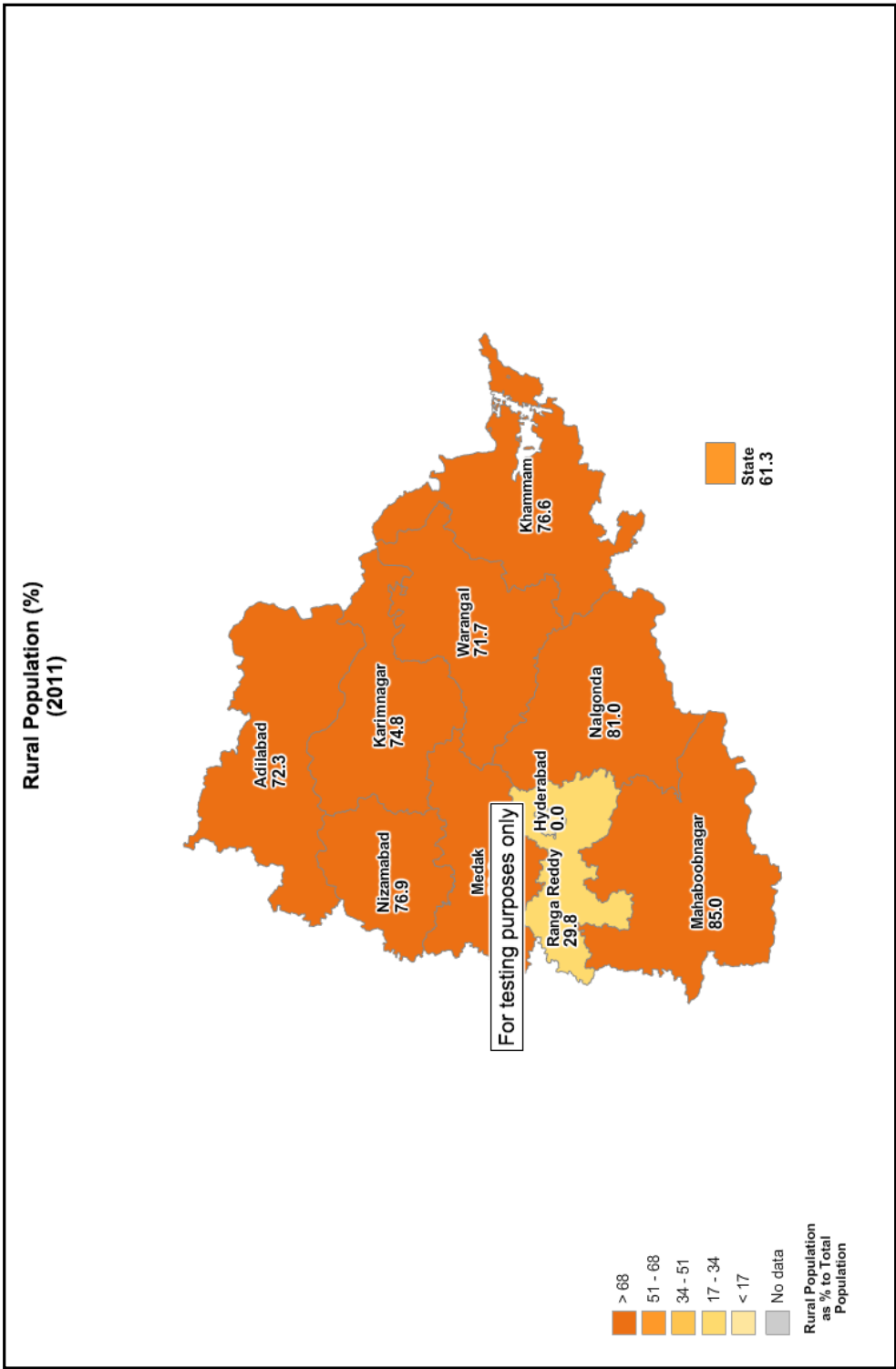
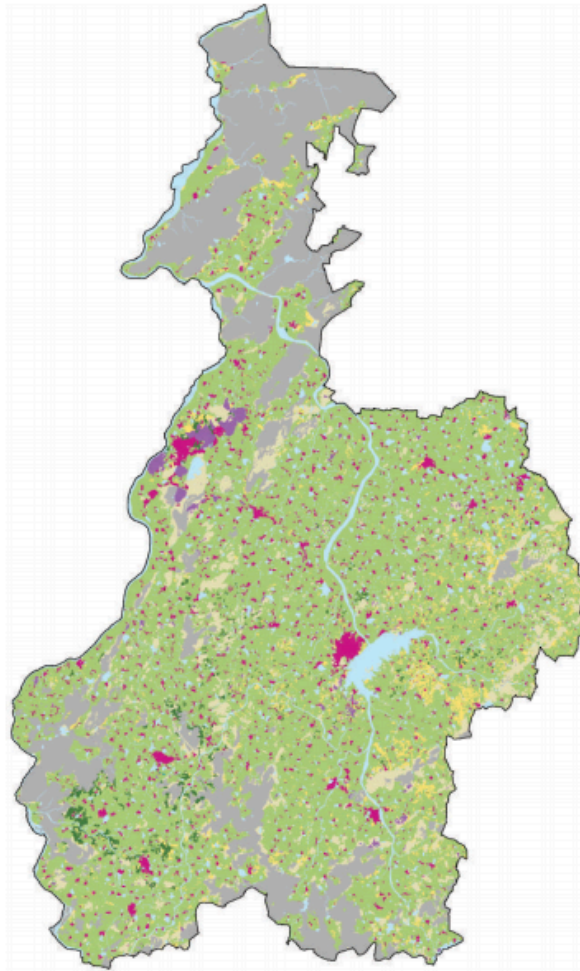


Figure 3.10 Map showing district wise percentage of rural population in Telangana (Source: Telangana State Development Planning Society)

## Land Use / Land Cover - Karimnagar



Main Category	Sub Category	Area In Sq.Km	%
<b>1 Built-up area</b>		430.7	3.63
1	Urban	98.8	0.83
2	Rural	331.9	2.80
<b>2 Built-up/Industries/Mine</b>		96.3	0.81
3	Industrial	8.0	0.07
4	Mining / Quarry	88.3	0.74
<b>3 Aquaculture</b>			
5	Aquaculture	0.3	0.00
<b>4 Fallow</b>			
6	Fallow	403.8	3.41
<b>5 Agriculture</b>		6845.5	57.76
7	Agricultural Land-Crop Land	6733.8	56.82
8	Plantation	111.7	0.94
<b>6 Forest</b>		2281.4	19.25
9	Deciduous Forest	1770.1	14.94
10	Evergreen Forest	0.0	0.00
11	Mangrove Forest	0.0	0.00
12	Forest Plantation	38.3	0.32
13	Scrub Forest	372.1	3.14
14	Tree Clad Area	100.8	0.85
15	Grass Land	0.0	0.00
16	Shifting Cultivation	0.0	0.00
<b>7 Waste Lands</b>		839.8	7.09
17	Barren Rocky	81.6	0.69
18	Gullied/Ravinous land	13.4	0.11
19	Salt Affected Land	0.0	0.00
20	Sandy Area	0.3	0.00
21	Scrub Land	744.6	6.28
<b>8 Water Bodies</b>		953.0	8.04
22	Canal/Drain	61.2	0.52
23	Reservoir/Tanks	552.2	4.66
24	River/Stream	339.6	2.87
25	Lakes/Ponds	0.0	0.00
<b>9 Wetlands</b>			
26	Inland Wetlands	0.0	0.00
27	Coastal Wetlands	0.0	0.00
<b>Total</b>		<b>11850.8</b>	<b>100.00</b>

Figure 3.11 Map showing land use pattern in Karimnagar district (Telangana, 2014)

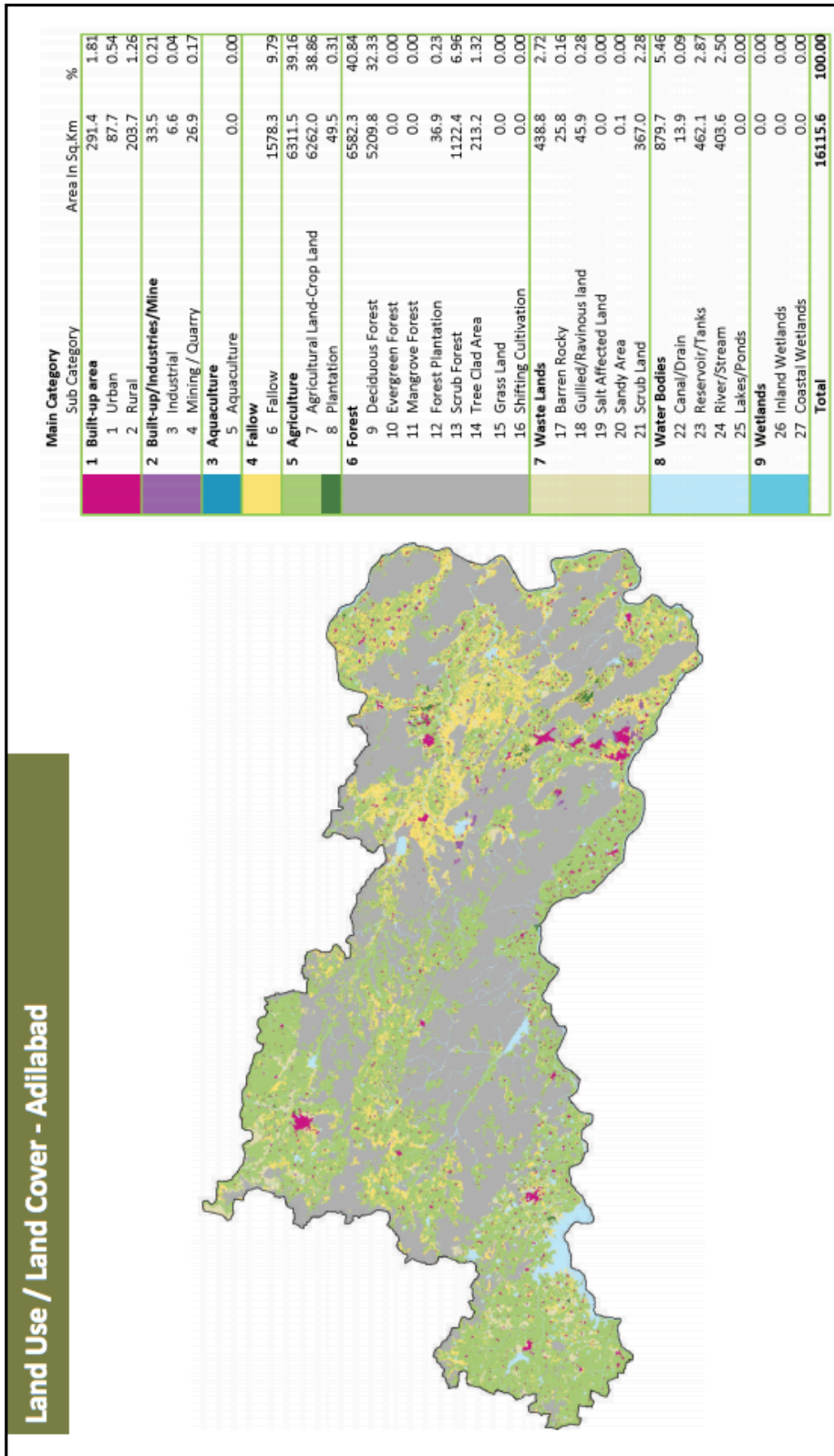


Figure 3.12 Map showing land use pattern in Adilabad district (Telangana, 2014)

Warangal are fairly well-distributed throughout these districts. However, the situation is different for Adilabad. Almost 41% of the total area of Adilabad is covered in dense, protected forests (Fig 3.12). Therefore, the population here is more concentrated in small pockets of agrarian settlements amidst these dense forest tracts. The forests of Adilabad and Nizamabad form the southern edge of the forests covering the Chhotanagpur plateau that extends up to Jharkhand in the north, which might well have facilitated movement of population groups, goods and possibly, technology throughout the Chhotanagpur plateau.

In the context of the present research, it is worth mentioning that this entire terrain has historically supported various semi-nomadic tribes, with evidence of continuous movement through the whole region. Some of these tribes like the Asur of Jharkhand in the north, the Agaria of the Bastar region of Chhatisgarh in Central India and the Kolam of northern Adilabad were actively involved in iron-smelting with slight variations in their technological styles (Elwin, 1941, Leuva, 1963, Sarkar, 1997, Mishra, 2003). The long-standing Naxalite insurgency in this area prevented substantial academic study on the social and technological contexts of iron-smelting with these tribal communities. Owing to the geographical proximity, the influence of these technologies on the pre-industrial iron and steel manufacturing in northern Telangana is a potential that needs to be explored in the future. The possibility of regular population movement through these forests have recently been highlighted when the Naxalite insurgents were found to be effectively using these forests as to move militants, ammunitions and arms between Telangana in the south, and Jharkhand in the north.



### 3.4 Historical Processes

Due to the inconsistency of the summer monsoon and heavily forested terrain, Telangana remained relatively isolated from the large-scale political and social processes of peninsular India until the rise of the Kakatiya dynasty in the 12<sup>th</sup> century. The early social formations took place sporadically on the relatively fertile banks of the Godavari in the north and Krishna in the south. However, dense forests along the Godavari valley in northern Telangana prevented the formation of large settlements. The Krishna valley on the other hand provided a wide opening through the Eastern Ghats to the coastal area which encouraged early population movements, development of commerce leading up to the formation of early urban centres such as Amravati and Nagarjunakonda (both in Guntur district of neighbouring Andhra Pradesh state) in the 2<sup>nd</sup> century BC (Talbot, 2001:23).

#### 3.4.1 Archaeology of northern Telangana up to 2<sup>nd</sup> century AD

##### ***Palaeolithic-Neolithic***

Archaeological studies in the four districts of northern Telangana has identified sites ranging from the Palaeolithic period to Early Historic settlement sites. A majority of the sites where Palaeolithic and Neolithic stone tools have been identified are located along the Godavari valley in northern Karimnagar and southern Adilabad districts (e.g. Luxettipet, Ramagundam, Buchiapally, Ramagiri, Peddapally). Rock shelters were also recorded in the immediate landscape of some of these sites (Thapar, 1979b).

### ***Megalithic burials***

Archaeological surveys have also identified several megalithic burial sites scattered across the landscape of Karimnagar and Warangal districts. These sites are typically situated close to old river channels and low granitic hills. Kadambapur (Thapar, 1979b:10) and Budigapally (Thapar, 1980a:3) in Karimnagar, and Polakonda (Thapar, 1979c:12, 1980b:5) and Lebarthy (Joshi, 1990:8) in Warangal are the important locations where megalithic burial clusters have been identified by various archaeological surveys since the 1970s (Fig 3.13). Excavations of megalithic burials at all these sites have yielded iron implements such as axes, spear and arrowheads and swords, which occur along with other metals like copper and bronze (Thapar, 1979a, Thapar, 1979b, Thapar, 1980, Joshi, 1990). This indicates that the megalithic population might have exploited local ore sources to smelt and work iron. However, no iron-working sites have been reported in the vicinity of the burial landscape. However, based on the number of iron implements recorded during the excavation, it is possible that iron was produced in a small scale, and probably worked by part-time itinerant specialists (as suggested by Johansen for Bukkasagara in northern Karnataka, see 1.2.4). Although no clear radiocarbon dates for these sites are available, it is generally agreed that the “megalithic” cultures in the region preceded an Early Historic settlement phase that emerged from the 3<sup>rd</sup> century BC onwards.

This hypothesis is based on the proximity of some megalithic sites to the Early Historic settlements (e.g. Kadambapur and Peddabonkur are situated 8km apart). Excavations at the Early Historic settlements of Dhulikatta (Thapar, 1979a), Peddabonkur (in



Karimnagar) (Deshpande, 1978) and Polakonda (Thapar, 1979c) revealed megalithic sequences underneath the Early Historic levels (Fig. 3.13).

The lack of evidence for habitation in the megalithic landscape of Telangana presents a problem in discerning the social context that produced the megalithic burials. A cluster of rock shelters with rock art were identified on a hill adjacent to the megalithic burial site at Budigapally (Thapar, 1980:3). However, the absence of dates makes it difficult to understand whether the same cultural group who lived in these rock shelters produced the megalithic burials. Based on the available archaeological evidence it may be hypothesized that the megalithic tomb-building cultures lived in a stratified society. There must have been a power structure in place, which enabled control over the human resources required to quarry stones from adjacent hills to build the megalithic tombs. The variety of grave goods found in the burials indicates some amount of craft specialization and the presence of a regional exchange network through which these goods were procured and consumed (Brubaker, 2000, Johansen, 2014). Although variations in grave goods can be an index of power hierarchy, lack of a clear chronology for the megalithic burial contexts of the region impedes such analysis.

### ***Early Historic settlements***

The period between 3rd century BC and the early centuries AD seemed to have given rise to a number of settlement sites in northern Telangana (Fig. 3.13). This period coincides with the rise of the Satavahanas (c. 3<sup>rd</sup> century BC- c. 220 AD), the first significant political authority in the region.

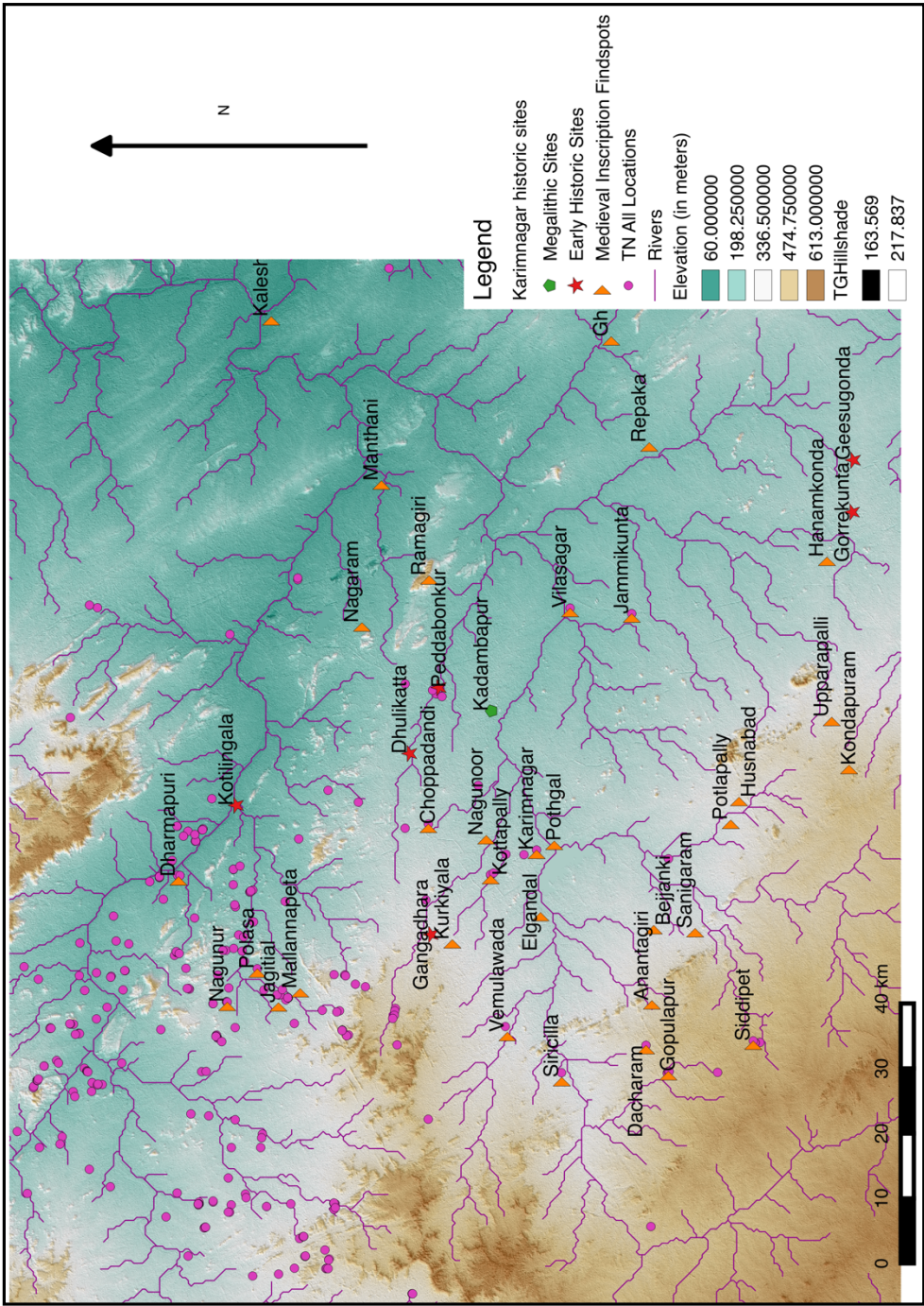


Fig 3.13 Map showing the distribution of various historical sites in Karimnagar mentioned in this text (Map work by T. Neogi)

The Satavahanas started off as vassals of the Telangana region under the Maurya emperors of east India. After the decline in Maurya power, the Satavahana rulers established their own political authority over a large area that included much of the Deccan plateau. The relative stability of the Satavahana period saw the rise of urban centres like Amravati in Krishna river valley along with consolidation of regional and long-distance commercial networks (Nagarajao, 1974, Talbot, 2001).

Kotilingala, a large fortified 2nd century BC settlement situated on the south bank of Godavari in Karimnagar district served as one of the early Satavahana capitals, and continued to thrive after the capital was transferred to Dharanikota in the Krishna river valley further south (Mitra, 1983, 1984, Nagarajao, 1985, 1986). Dhulikatta and Peddabonkur (both in Karimnagar) on the Manair River, a tributary of the Godavari, are two other early historic habitation sites. The Early Historic levels at Peddabonkur are characterised by the presence of Satavahana coins, iron artefacts, stone and glass beads, as well as local and non-local pottery, and remains of permanent brick structures (Deshpande, 1974:2, 1975:2-3, 1978:2). All these indicate the presence of a thriving exchange network, monetized economy and stratified urban society.

Dhulikatta, located 16 km to the north of Peddabonkur is a larger Early Historic settlement with evidence of continuous occupation between 2<sup>nd</sup> century BC and 1<sup>st</sup> century AD. Archaeological excavations at Dhulikatta identified six occupational phases in the area (Thapar, 1979b:13, 1979c:9, 1980:4). The major find in Dhulikatta is a Buddhist Stupa dating from the 2<sup>nd</sup> century BC, situated a little apart from the small habitation site. A significant shift in habitation pattern was identified in the sixth and final

phase of occupation at Dhulikatta (c. 1st century AD). Small mud brick hutments replaced the permanent brick structures identified in the earlier phases, along with the debitage of conch bangles, glass and stone bead manufacture. This led the researchers to conclude that in its final phase of occupation Dhulikatta was probably inhabited by communities of specialized craft producers who participated in regional and long distance trade networks which passed through this area. The finding of a silver Roman coin inscribed with the head of Emperor Augustus in the same level strengthened this hypothesis (Thapar, 1980).

### ***Discussion***

Scholars often cite the Satavahana rule as the period of unprecedented prosperity and cultural efflorescence for the Deccan (Sastri, 1966:25-38). In the case of northern Telangana, the establishment of urban centres like Kotilingala, Dhulikatta, Peddabonkur and Polakonda indicate a marked shift in social formations from the preceding megalithic phase. The Early Historic settlements in Karimnagar were only concentrated in a small fertile triangle between the Godavari and Manair river valleys which indicate the growing dependence on settled agriculture. This sedentary agrarian life along with the expansion of regional and trans-regional trade networks led to the formation of new social categories, consumption patterns and power hierarchies in the fertile regions (Sastri, 1966, Talbot, 2001)

### 3.4.2 Northern Telangana between the 3<sup>rd</sup> - 12<sup>th</sup> centuries

#### ***Interlude (3<sup>rd</sup> – 10<sup>th</sup> century AD)***

Archaeologically, there is little known evidence in northern Telangana for the period between the 3<sup>rd</sup> and the 10<sup>th</sup> century AD. The centre of Satavahana political authority shifted south to Dharanikota and Amravati in the more fertile lower Krishna valley in present day Seemandhra. Subsequent major South Indian powers like the early Chalukyas (of Badami), the Pallavas, the Pandyas, between 6<sup>th</sup> and 9<sup>th</sup> century AD; and from the 9<sup>th</sup> century onwards, the Cholas, the Rashtrakutas and the later Chalukyas (of Kalyani and Vengi), all ruled from either the coastal region of Tamil or Andhra country, or the fertile Raichur doab at the confluence of the Krishna and its tributary, the Tungabhadra river in the central part of Deccan plateau. High fertility of the soil in these two regions provided a stable agrarian base, which aided the rise of major political powers in the Deccan. However, the fertility and stability of the agrarian base in these areas also resulted in frequent power struggles between regional kingdoms of South India for control over the resources, making it a highly volatile period in the political history of Deccan (Sastri, 1966, Talbot, 2001).

#### ***Expansion of the agrarian base in the Chalukyan period (10<sup>th</sup>-12<sup>th</sup> century AD)***

Although northern Telangana was always under the nominal control of one of these major powers, it largely remained a frontier zone owing to its forested terrain, lower relative rainfall and comparatively less well developed agriculture. It was in these areas that several land grant inscriptions started to appear from the middle of 10<sup>th</sup> century. In

Karimnagar district for example, a majority of the inscriptions coming from this period are concentrated in an area around Vemulawada on the banks of Manair River in the central part of the district (Fig. 3.13). Trautmann et al. (1985) studied the geospatial distribution of medieval inscriptions in Tamil Nadu. They observed that the highest concentration of inscriptions corresponds with places having high agricultural productivity (1985:21). Based on this hypothesis Talbot argued that for pre-colonial Seemandhra and Telangana, “epigraphic occurrence can serve as an indicator of population density and the employment of intensive agricultural techniques” (2001:38). An overwhelming majority of these inscriptions deal with the establishment of villages or grants of lands for the upkeep of temples and monasteries. Since agricultural productivity is crucial in order to sustain the villages and support the religious institutions, agricultural developments in an area was necessary such grants could be made operational (Talbot, 2001:38). Regular occurrences of land grant inscriptions on stone in the temples, tank-bunds and on copperplates dated between 10<sup>th</sup> and 12<sup>th</sup> centuries in a small area surrounding Vemulawada (Fig 3.13) in central Karimnagar indicates some amount of agrarian development in this area during this period.

A small branch of the early Chalukyas of Badami ruled from Vemulawada as the feudatories of the Rashtrakuta power from the mid-8<sup>th</sup> century until the mid 10<sup>th</sup> century AD. Five inscriptions found in villages near Vemulawada dated between 946 AD and 968 AD mention the names of Vemulawada Chalukya kings Arikesari II, Baddega and Arikesari III as rulers of the area (Sastry, 1974). The independent mention of these rulers as the sovereigns of this region without even nominal recognition of the



Rashtrakuta political authority indicate that the Vemulawada Chalukyas ruled central Karimnagar autonomously since at least the early 10<sup>th</sup> century AD.

As mentioned above, the primary subject of these inscriptions is land grants and other kinds of donations made to the local Jain monasteries, temples, Brahmin priests as well as at least one person mentioned in the inscription as a “Scholar”. The king is mentioned as the donor in only two of the five grants, while different local elites who acknowledged the Vemulawada Chalukyas as their overlords made the rest of the donations. The portions of these non-royal grants are larger than the royal ones, and included grants of land to build and support monasteries and temples. One grant dating to the reign of Arikesari II also includes the provision for the establishment of a village, a garden and the excavation of a tank to provide for a Jain monastery. These indicate the existence of a group of powerful landed elite with substantial control over the consumption and redistribution of local resources. The land grants and other donations made to the religious institutions also imply the presence of a temple/monastery-centred redistributive economy that characterizes peninsular India in the medieval period. An early inscription dating from 946 AD mentions the endowment of “wet land” to a Brahmin by King Arikesari II. “Wet land” most probably indicates irrigated land, implying that some sort of water management system was already in place as a strategy to expand the agrarian base in this area.

This process of land development and agrarian expansion gathered momentum between the latter half of the 10<sup>th</sup> to 12<sup>th</sup> centuries as northern Telangana was integrated more completely within the political, social and ideological sphere of the

Western Chalukyas (Sastri, 1966, Parabrahma Shastry, 1974, Talbot, 1995) . Several local chiefs serving as feudatories maintained the Western Chalukya political control over Telangana (Sastri, 1966). All Western Chalukya period inscriptions found in Karimnagar district acknowledge the overlordship of the Western Chalukyas, a majority of the endowments were actually made by the local chiefs and military officers who controlled the resources of the area (Parabrahma Shastry, 1974). The multiplication of these resources were only possible by improving the agricultural potential of the land by undertaking irrigation projects and by bringing new lands under the plough by setting up new villages. The establishment of new settlements also meant the migration of agriculturalists, Brahmins and other occupation groups from different parts of the region into these new villages and incorporation of the existing pastoral communities within the society. However, we do not have ample evidence to discern how closely the local chiefs regulated this process of migration and incorporation (Talbot, 1992, 2001).

Several inscriptions dated between 992 AD and 1149 AD were found from a number of villages in central Karimnagar. A majority of them commemorate the establishment of temples, the endowment of “wet land”, villages, gardens and livestock for the upkeep of these temples, Brahmin priests and other temple servants. An endowment for a number of *ratna* or pulleys and lift apparatus often accompanied the “wet land” grants for use in drawing water from the canals and wells for agriculture. Several inscriptions also mention the establishment of new villages and gifts of tax-free residences to the Brahmins and their students. The grants of oil mills to several religious establishments to supply oil for lamp-offerings to the deity are also common in these inscriptions (Parabrahma Shastry, 1974).





*Figure 3.14 Remains of a Western Chalukyan temple in Nagunuru near Karimnagar (taken by the author)*

A bulk of these developments were geographically restricted in a small area in central Karimnagar as evidenced by the locations in which the inscriptions were found. This area surrounding Vemulawada also saw a prolific temple building phase in this period. Vemulawada itself emerged as a major cult centre of Raja Rajeswara Swamy (a form of Shiva), and remains a major place of pilgrimage to this day (Parabrahma Shastry, 1974, Talbot, 2001).

Archaeological remains of other temples with characteristic Western Chalukyan eight-pillared *mandapa* architectural styles can be seen in Choppadandi, Nagunuru (Fig. 3.14), Jammikunta and Sanigaram. Only Polasa and Dharmapuri in my study area in

upper Karimnagar district produced inscriptions or temples from this period. It appears that a majority of this area in upper Karimnagar remained a densely forested frontier.

### **3.4.3 Political process during the Kakatiya Period (1163-1324 AD)**

#### ***Political history***

Politically, the Western Chalukyas were in constant conflict with the Eastern Chalukya-Chola alliance based in coastal Andhra, to retain control over the entire Andhra region. During the two centuries of intermittent warfare, the local princely families, and feudal magnates of coastal Andhra supported the Eastern Chalukya-Chola alliance. The feudatories in the interior part of Andhra Pradesh, especially in Telangana lent their support to the Western Chalukyas. With the gradual weakening of political authority on both sides by the mid-12<sup>th</sup> century, these princely families assumed independent authority in several parts of coastal and inland areas. Based at Hanamkonda in Warangal, the Kakatiyas were one such princely lineage that declared their independent authority in 1163 AD (Talbot, 2001:26).

After the Satavahanas in the early years BC, the Kakatiyas were the only major political power, to have its base in the Telangana region. In this period Telangana became the centre of a major power in peninsular India as the Kakatiya political network controlled a vast area encompassing most of what constituted the erstwhile Indian state of Andhra Pradesh (Talbot, 2001:26). After facing a few initial reversals of fortune following the invasion of Yadava rulers from the west, the Kakatiyas succeeded in creating an economically and politically stable state founded on an efficient administrative network

and a strong army. Despite successfully repelling repeated invasions by armies of the Delhi Sultanate from the north, the Tughlaq Sultans of Delhi finally defeated the Kakatiyas in 1323 AD.

### ***Consolidation of the agrarian base***

During the Kakatiya period highly fertile coastal Andhra, semi-arid Telangana and arid Rayalseema were integrated under a single administration for the first time in the history of the region. Coastal Andhra was already densely populated with a stable agrarian base, supporting the production of rice and other wet crops. The rich deposits of silt in the deltas of the Krishna and Godavari rivers also increased productivity. The Kakatiya authorities efficiently controlled and exploited the resources of coastal Andhra. The economic efflorescence of this region is indexed by a large number of Kakatiya period inscriptions found in this area (Talbot, 2001:30).

However, unlike the preceding kingdoms, the Kakatiyas did not shift the centre of their political power to this fertile coastal Andhra region. They ruled from their capital first in Hanamkonda and then Warangal in the semi-arid northern Telangana region. As a result, areas constituting present day central Karimnagar along the Manair river valley and central and western Warangal served as the administrative core of the Kakatiya regime. Presence of a strong agrarian base was crucial for the maintenance of Kakatiya authority in this core area, and the rulers invested heavily on exploiting the agrarian potential of this region. This was done through forest clearance and reclamation of lands for agriculture. An efficient water management system was put in place, and the network of canals, reservoirs and tanks were expanded to store and distribute rainwater

to the newly settled villages in the erstwhile frontier areas (Parabrahma Shastry, 1974, Talbot, 1991, 1995, 2001).

Based on the distribution of inscriptions in Karimnagar (Parabrahma Shastry, 1974), it may be argued that the agrarian base was extended northward towards the study area of the present project. A part of the forest was cleared to set up new agrarian villages. Reservoirs were constructed at the base of the small hills to collect rainwater during monsoon, which was then distributed to these new settlements through an interconnected network of canals and tanks (see 3.2.4). Like the preceding period, contemporary grant inscriptions suggest that local landed magnets were instrumental in expanding the agrarian base. The land grants were normally made to the temples, which were then responsible for establishment of villages and implementing strategies to improve the productivity of the land (Parabrahma Shastry, 1974, Talbot, 1991).

### **3.5 Social formation in the frontier zone during the Kakatiya period**

Intensification of agriculture in Kakatiya era northern Telangana led to the emergence of new social identities in the region. Although subsequent Islamic invasions and incorporation of the region under direct Islamic rule from 14<sup>th</sup> century onwards led to another reorganization of society, the Hindu social identities persisted well into the 18<sup>th</sup> century when the imposition of colonial epistemological categories of a pan-Indian caste system froze and homogenized rural Indian society (Talbot, 2001:12). Macro level social formation in the frontier zone of northern Telangana in the Kakatiya period took place through two interconnected processes—the social and cultural integration of the frontier communities and the large-scale immigration of population into the region.

### 3.5.1 Integration of the frontier communities

Northern Telangana was a sparsely populated and densely forested frontier zone for most of its early history. Itinerant pastoral communities who practiced swidden agriculture inhabited the region. Several tribal communities lived in the forested terrain along the Godavari valley of modern upper Karimnagar and lower Adilabad district. Although there is no conclusive evidence, it can be inferred from the current diversity of tribal groups in this region that different communities inhabiting this area lived within their distinct cultural systems.

The Kakatiya state encountered these frontier communities as they expanded the agrarian base by clearing a part of the forests in this region. As a result, several tribal and pastoral communities with their diverse set of cultural systems were integrated within the wider Kakatiya political, ideological and economic network. This integration transformed the society of northern Telangana, as belief systems and cultural values of these communities were accommodated within the contemporary society (Talbot, 2001:43-44). One certain evidence of this process of integration is an increase in worship of several village deities such as Yellamma and Maisamma in different parts of Telangana and Seemandhra. These village deities are believed to have a tribal origin and were later incorporated within the Hindu pantheon as wives and daughters of Shiva (Charsley, 2009). It is tempting to hypothesize that the *Mudda Kammaris* were also integrated in the rural Hindu social structure of northern Telangana during this period. Their current location in the relatively isolated and forested areas along the magnetite

ore sources, along with the occurrence of archaeological remains of iron-smelting in these isolated pockets in northern Karimnagar adds currency to this hypothesis.

### **3.5.2 Immigration of population**

As a part of their agrarian expansion policy in the frontier region of Telangana, the Kakatiya administration actively encouraged agriculturalists and other occupation groups to settle in the newly established agrarian villages from more populated parts of the kingdom, including coastal Andhra. This encouragement came in the form of tax remissions and several other incentives. Sometimes family groups from coastal Andhra voluntarily ventured and settled in the inland areas. The Kakatiya state expected that the new settlers would work on the lands in these new villages and contribute in increasing the agricultural productivity (Talbot, 2001:46).

Apart from the integration of pastoral and tribal communities, the influx of people from various parts of Telangana and Andhra created a vibrant and heterogeneous society in northern Telangana. According to Talbot (2001:47) the resulting mixture of people from different backgrounds gave rise to a dynamic society which was more mobile and martial in quality than the societies found in contemporary “wet-zones” of coastal Andhra and the Tamil country where ecological features favoured high agricultural productivity.

A majority of those who migrated to the frontier zone of northern Telangana came and settled in the new villages in individual family groups. The kinship relations and subsequent extension of kinship through marriage became the primary means for

expressing identity over caste. The inscriptions from the Kakatiya period rarely mention castes of the donors, except in the case of the Brahmins. Occupational identity and family identity feature more prominently in these inscriptions (Talbot, 1991, 2001:51). Even after acknowledging the fact that there all inscription of this period have an upper class bias, it is significant that the political elite and other rich donors did not articulate their caste identity in a publicly accessible act of inscription making.

The importance of kinship-based identity was especially true for several craft groups who were more mobile within the landscape. Parthasarathi (2001) suggested that ability to migrate between villages was a fundamental right that several pre-colonial craft groups enjoyed. This gave them flexibility to move across extensive area to avoid famines or shortage of work, along with providing them access to a greater bargaining power over their clients. These migrations mostly took place in kinship groups, giving precedence to kinship based identities over caste based ones. In a semi-arid region like northern Telangana where frequent famines caused by fluctuations in annual rainfall must have induced these communities to migrate very frequently. As a result, names of ancestral villages (*inti-peru*) constitute an important element of individual names in Telangana. People bearing the same *inti-peru* are considered as kins from the same ancestral village and marriages does not normally take place between the individuals having the same *inti-peru*.

### 3.6 Discussion

Through the above sections I produced a brief outline of the environment and historical processes of northern Telangana. Reiterating what was suggested in the introduction of



this chapter, I attempted to show that different aspects of environment in northern Telangana had significantly influenced the historical processes in the region. At the earliest stages, the Neolithic and megalithic sites were all identified on the banks of Godavari or its tributaries. The Early Historic settlements of Peddabonkur, Dhulikatta and Kotilingala were all situated in a fertile triangle in the eastern boundary of the present day Karimnagar district, supported by the Godavari and its tributary, the Manair river. This constrained distribution of prehistoric and Early Historic sites in the study area is due to its comparatively low rainfall and annual fluctuations in the summer monsoon. The greatest contribution of the Kakatiya rule in northern Telangana is therefore large-scale irrigation project through rainwater harvesting, distribution and storage by building canals, reservoirs and tanks in the region. This helped in the expansion of agrarian base, establishment of villages, influx of people from other parts of Telangana and assimilation of local hunter gatherer and pastoral communities. It is this stable society created during the **Kakatiya period that** provides the social context of studying pre-industrial iron smelting in the region.



## CHAPTER 4

### RESEARCH METHODOLOGY

#### 4.1 Introduction

In this chapter I introduce the research methodology used in this project. First, a brief description of the objectives and the research questions is presented followed by an in-depth discussion of the research methodology. This project incorporates data from ethnographic fieldwork, previous and current archaeological surveys and a wide range of documents and oral traditions from the Colonial period obtained through archival research. The methods followed to collect, store and analyse the information from each of these sources, which I consider to be individual datasets, are presented individually under different headings.

#### 4.2 Selecting the study area

The archaeometallurgical record of pre-industrial iron and steel manufacturing identified by the *Pioneering Metallurgy* project is spread across discrete agricultural and economic zones in this region. To situate traditional iron-working within the socio-cultural and economic context of these diverse zones, an extensive ethnographic survey was conducted in a c. 120 km-diameter area centred on my base in Jagitial, a major town.

##### 4.2.1 Zones within the study area

I define the different zones in my study area using related but distinct economic and agricultural traits.

### ***Economic zones***

As I have discussed elsewhere (3.3), a majority of people in Telangana live in villages. Rapid, large-scale urbanisation is a comparatively recent phenomenon that is transforming the rural economy of the region. Increased access to cheap, mass-produced items in urban markets and the monetization of the village economy has the potential to transform the economic relations between rural craftsmen and their clients, at least in villages within easy reach of this urban economic network. However, villages that are relatively remote from urban centres tend to continue more traditional kinds of economic relationship with the craft-producers and clients.

The study area of this project incorporates both urban and rural economic zones. In this study, the Urban Economic Zone (UEZ) constitutes villages within a 10 km radius of a city like Jagtial or Karimnagar or within a 5 km radius of a small town, like Dharmapuri. These villages typically have a direct road connections with the urban centres; the villagers can access products of the urban markets and participate in urban economic networks on a regular basis. The rest of the villagers are classified as a part of the Rural Economic Zone (REZ). In the REZ, the villages normally consume locally produced goods since accessing large urban markets on a regular basis is problematic. The weekly village markets are provides them with the only opportunity to purchase mass produced items available in the urban markets. These are brought to the village by itinerant traders and craftsmen.

Ease of access to urban markets is a necessary condition when determining a village's inclusion within the UEZ. Even if a village is located within the stated radius of an urban

centre, lack of good road connectivity would lead to a REZ classification. It was hypothesized that the social and economic network in which the blacksmiths operate in these two zones would be markedly different, significantly affecting their position in the village power structure. Chapter 9 examines the effects on the lives and crafts of the iron-working communities living in these two distinct economic zones.

### ***Agricultural zones***

The survey area can also be divided into three discrete zones based on annual cropping patterns.

Paddy rice is the main crop in the well-irrigated zone of central Karimnagar district which constitutes the southern part of the study area. Rainfall and irrigation supports two harvests of paddy in the annual agricultural cycle. For the purposes of this study, this relatively fertile area is treated as a discrete agricultural zone and termed Zone 1.

The semi-forested areas in upper Karimnagar district receive comparatively high rainfall during the summer monsoon. This supports the production of paddy in the first half of the agricultural cycle (June-November), but inadequate winter rainfall and a less extensive irrigation network cannot sustain a second crop of paddy. During the winter, farmers in this area either leave their land fallow or grow dry crops like wheat and millet. This area with a mixed cropping pattern is treated as a separate agricultural zone: Zone 2.

Deposits of water-retentive black soil along the Godavari valley of Karimnagar and Adilabad districts supports the cultivation of cotton in some areas. Therefore, along with

the cultivation of paddy between June and November, cotton is sown as a winter crop and harvested in March/April, at the end of the annual agricultural cycle. This cotton-growing region is considered to be the third agricultural zone: Zone 3.

The objective of this research was to investigate how, if at all, the difference in cropping patterns affected the social and economic relationships between the blacksmiths and their client farmers in these three discrete agricultural zones.

I envisaged that studying iron-working communities in diverse contexts such as these would indicate context-specific social and economic behaviours, which in turn could be used as analogical tools for studying iron-working in similar contexts in the past.

#### **4.2.2 Pilot survey**

At the beginning of the project, a two-month long pilot survey was carried out to locate villages within these zones where iron-smelting and other iron-working communities were present. However, it was impossible to visit every village and town in this vast study area. A rational survey strategy was therefore adopted to ensure uniform coverage of these diverse zones, starting with visits to those iron-working families that were visited during the 2010 *Pioneering Metallurgy* fieldwork. All of these iron-working families immediately recognized me and were willing to provide connections with their extended family members settled in other villages in the study area. Besides helping shortlist the villages and towns in each zone, these recommendations helped me access and understand the intra-community social network, family relations, friendships and conflicts of the blacksmiths. These recommendations also helped me to establish a

working relationship with a majority of the iron-worker families in each of family networks, with comparative ease.

A total of 95 towns and villages were visited during the pilot survey. Of these, the families of iron-smelters-turned-blacksmiths and other members of iron-working communities were identified in 54 settlements constituting the core of the ethnographic study for this project.

These 54 settlements are unevenly distributed in the study area because several villages situated in the UEZ did not have any blacksmith families. The iron-worker families in these areas had either migrated to villages in the REZ, or given up blacksmithing and moved into the urban areas. While this process was given due importance in my analysis, these villages were not visited for further ethnographic study.

### **4.3 Methods of Ethnographic Study**

Detailed ethnographic study was conducted with the iron-working communities in the 54 settlements identified in the pilot survey. A total of 352 traditional blacksmiths live in these villages, of which 192 were still operating as blacksmiths on a full- or part-time basis at the time of this fieldwork. The rest had either taken up a different profession within the village, or migrated to the urban areas with their families. Although I make occasional references to the lives of the latter, this study primarily focuses on the lived experiences and memories of those who continue to practice their traditional craft.

### 4.3.1 Language constraints

At this point, it is important to be clear about the language differences that affected my research. Telugu is the native tongue of my interlocutors, and very few spoke either Hindi or English, languages that I understand. Although I picked up some Telugu over the course of my fieldwork, I was not able to take a formal Telugu language course due to the time constraint. I therefore hired two colleagues (sequentially) as field assistants to help me with interpretation in the field. Both belong to the northern Telangana region, and were conversant in the local dialect of Telugu used by my interlocutors. To minimize the risk of misinterpretation, I kept the conversations as simple as possible and visited a majority of my interlocutors several times with different interpreters. Through repetition and multiple interpreters, I am confident that I have understood the important parts of the information that was given to me.

### 4.3.2 Ethics of ethnographic fieldwork

Before beginning my fieldwork, I submitted my research proposal for assessment by the Ethics Committee under the College of Humanities at University of Exeter. To maintain a high ethical standard throughout the ethnographic study and respect the integrity and wellbeing of my interlocutors, the following steps were taken.

#### ***Informed consent***

I carried several copies of the College Ethics Proposal document (Appendix 1) translated into Telugu. As a part of the university's ethics policy, I was required to supply copies of this document to my interlocutors to obtain their informed consent. The

policy also required the interlocutors to sign a “Consent Form” attached to the ethics proposal, by which they would authorize the use of the information they provided. However, it was impossible to materialize these policies in the field for the following reasons.

First, many of the blacksmiths and almost all of the aged iron-smelters were illiterate. Any form of written information was not accessible for them, regardless of the language in which it was written. Although the younger generation of these families were able to read and write, on most occasions they were not present during our visits. When present, they were generally sceptical about signing any document, and advised the elder family members against it.

Secondly, there was widespread scepticism about signing or placing a thumbprint on the consent form. The rural iron-working communities in northern Telangana have been gradually marginalized by the decline in demand for their craft. The resulting poverty often compelled them to take out loans with unfavourable terms from wealthy farmers and other affluent families in the village. These lenders sometimes misused the loan document to coerce the indebted blacksmith families. In addition, the collective memory of the local iron-smelting community is informed by several government prohibitions and pamphlets on their rights to exploit forest resources for iron-smelting over the last 150 years. Therefore, they treated any form of paperwork with extreme suspicion, as it had the potential to be misused against them in the future.

For these reasons, presenting the ethics proposal document and consent form at the onset of conversations with my interlocutors was problematic. It obstructed building an

informal trust-based relationship with the members of iron-working communities, as the suspicion about the paperwork negatively influenced their perception of me. I discussed this issue with my supervisors and the college ethics office and it was decided that a signed consent was not required; oral consent from the interlocutors would be sufficient.

Interactions with traditional iron-workers and members of other rural and urban communities started with a brief introduction of my research topic. With the help of my interpreter who spoke the local dialect of Telugu, I described the aims and objectives of my study and outlined the possible ways I will use the information they provide. It was made clear that I will only use this information in my research and make it available in the public domain through academic publications, conference presentations, posters and academic blog posts, and then only if I have consent from my interlocutors. I told my interlocutors that they have the right to withdraw their consent at any point in the future.

Among the 192 operational blacksmiths, seventy-four agreed to let me conduct a formal semi-structured interview, either individually or collectively. They were also more willing to talk to me on subsequent visits. The remaining majority were more comfortable with short one-time informal conversations and less prolific note-taking in front of them.

### ***Anonymity***

Among the 74 blacksmiths who were formally interviewed, only two wanted to be anonymous. I have used pseudonyms for them and their family members. Fragments of data collected from those blacksmiths (118) who were uncomfortable with sharing



information were kept completely anonymous. Due to their large number and the relatively small amount of information that they shared, no pseudonym was assigned to anyone in this group.

The provision of pseudonyms for place names, as is commonly used in individual village-based ethnographical studies, was not feasible for this project. The identification of Archaeometallurgical remains of iron-smelting in and around many of these villages meant that replacing the original place names with pseudonyms would have been counterproductive for any future archaeological work in this region. In addition, analysis of the geospatial location of iron-working communities in respect to each other and the archaeometallurgical record constitutes an important element of this study. This analysis would be impossible if the place names were concealed and GPS locations of these places were not recorded and published. The integrity and wellbeing of members of the iron-working communities in these villages were not in any way threatened by using original place names in this thesis.

### ***Images, videos, voice recordings and sketches***

Oral permission was sought before taking photographs of my interlocutors, their family members, workspaces and also before any sketch-plans drawn during the fieldwork. It was clearly explained that these images would be used for academic purposes only. To avoid confusion in the future, only those images for which proper consent could be obtained were retained in the camera. Other pictures were deleted in front of the interlocutors. On subsequent visits, I carried printed copies of these images to give to my interlocutors, a gesture that was well appreciated.

However, in almost all instances the interlocutors did not allow voice or video recording of our conversations. I gave due respect to their opinion and no voice or video recordings were made without their knowledge and consent.

### ***Gifts***

A common question asked by my interlocutors was what they would gain from helping me do this research. This was a genuine concern that needed to be addressed in a thoughtful way. The automatic instinct in this case is to give money to the impoverished interlocutors as an expression of gratitude. But this was not deemed to be the right course of action. The impersonal act of giving money places the ethnographers in a dominant position of power, widening the gap between them and their interlocutors. It also belittles rather than gratifies the interlocutors' genuine enthusiasm to share information about their lives. The authenticity of ethnographic information purchased for money can also be highly questionable, since communities can come up with a standard narrative of what the researchers want to hear. This was the case in at least one village in my study area where a researcher had distributed a large amount of money to the iron-smelter families a few years before my fieldwork in order to collect information on iron-smelting from the local community.

Apart from some members of the iron-working community in that one village, none of my interlocutors expressed a desire for a monetary reward. A majority of them were awed by the fact that their traditional craft could be a matter of serious academic enquiry. They were glad to learn that the stories of their lives and crafts would eventually be available to an international audience when published. They often

requested me to send them the pictures that I took during my fieldwork. Each time I visited, I asked if they needed anything from the town I was living in, and I bought what they required. When I worked with the operational blacksmiths, I normally purchased iron implements to use in the apartment I had rented in Jagitial. I have also collected a number of smelter family genealogies that I intend to print and send to the families, so that they can be used to perpetuate family histories. My interlocutors never asked me for money; on the contrary, they appreciated the personal nature of my gifts that created a lasting relationship with the community.

### **4.3.3 Approaching the communities in the field**

#### ***The problem of power hierarchy***

During the first few days of fieldwork, I visited villages in the car of a local academic who had kindly offered to drive me around. However, I realized that the use of a car is perceived as an index of social prestige and economic and political power, and is often identified with the rare visits of politicians, ministers, assessors, surveyors or other government officials. This was affecting the way the members of the iron-working communities perceived and interacted with me. In their eyes I belonged to the privileged and affluent class that is capable of exercising power and authority over them. I was treated with utmost deference, like any government officer would be in the village. But this impeded the informal trust-based relationship I wanted to establish with my interlocutors. My non-local origin, my broken Telugu, and my current social standing as an academic educated abroad added more complexity to the way my identity was constructed and perceived by the local rural community. It was my responsibility to

narrow this gap in the power hierarchy and change their perception of me as much as possible.

### ***Strategies employed to narrow the gap***

After hiring an interpreter who spoke the local dialect of Telugu, we rented a motorbike to conduct fieldwork. Motorbikes are familiar modes of transport regularly used by the locals in the region. During our interactions, we made a point not to go straight into the research topic. The “Consent Form” was never mentioned, and we started the conversation by introducing ourselves over cups of tea or fresh milk offered to us.

Although most of my interlocutors insisted that we sat on chairs as they squatted on the floor, we made a point to sit with them at the same level and maintain eye contact as we spoke (Fig. 4.1). We would gradually ease into the topic of our research, asking for oral consent for field notes, pictures and sketches. It was essential for them to feel comfortable and respected in our presence. It was important to tell them that we were grateful for admitting us into their own social space, and for sharing their lived experiences with us. Since the interlocutors did not consent to the voice or video recording of our interactions, meticulous field notes were taken. Clarifications were sought if I did not understand. To preserve the privacy of the interlocutors, GPS coordinates were collected at the centre of the village rather than at the residences of the interlocutors.



*Figure 4.1 My colleague and interpreter Mr. Pradeep Addanki in conversation with the mudda kammari interlocutors in Dasturabad on early one winter morning in January 2014 (taken by the author)*

#### **4.3.4 Interaction strategies**

The ethnographic data for this research was collected through two types of interactions: informal conversations and formal semi-structured interviews.

##### ***Informal conversations***

Conversations with any interlocutor started informally by introducing my interpreter and myself, and asking permission to ask them some questions about their lives and work.

Any doubts they expressed about the purpose of our visit and our identities were addressed immediately. I apologised for my inability to converse in Telugu and I generally let the interlocutors spontaneously select the theme of the conversation and decide on its direction. At these initial stages of the development of a trust-based relationship, it was essential to make my interlocutors feel comfortable about working with us in the longer term. This was only possible by allowing them enough time to get to know us and trust our purpose.

The conversations at this stage often moved away from the research topic, and no effort was made to bring the discussion back. Apart from discussing their lives and work, the interlocutors were interested in knowing more about our lives both within and outside academia. We discussed a wide range of subjects including politics, current social issues, and cricket. The duration of each of these conversations varied, and we allowed the interlocutors to choose when they wanted to stop. Their decisions and opinions were always respected in the matters of personal boundaries and privacy.

The interpreters were instructed to translate between Telugu and Urdu, rather than English. Apart from the relative ease in rephrasing Telugu statements in Urdu, this also allowed the interlocutors to be actively involved in the process of interpretation. Since Urdu was the official language of the former princely state of Hyderabad, it is widely used in the Telangana region, and even the members of these rural communities were able to understand some Urdu, however they were not necessarily able to speak the language. English, though widely used in India at present, remains a language used primarily in the urban areas. Unlike English, translation between Telugu and Urdu did



not completely alienate my interlocutors from the interpretation process, and they often corrected misinterpretations of certain concepts during the course of an interaction.

### ***Semi-structured interviews***

Sixty-three semi-structured interviews involving 74 individual iron-workers were conducted during the course of the fieldwork (Appendix 1). Although no predetermined common questionnaire was used, the interviews were structured with common themes to maintain consistency. These themes addressed family histories, technology employed in iron-smelting and blacksmithing, organisation of production, clientele, remuneration patterns and the current decline in iron-working and its effects on the lives of the blacksmiths.

None of these interviews were digitally recorded, since the interlocutors did not consent to the use of voice or video recorders. The contents of the interviews were noted down in field notebooks and transcribed in Appendix 1.

A major problem I faced while transcribing interviews in Urdu into English is the informality of the language. My interlocutors spoke informally, and in order to maintain that sense, I tried my best to make the language as informal as possible in my transcripts.

### **4.3.5 Genealogies**

Collecting the genealogies of iron-smelter families constituted a major part of my ethnographic fieldwork. During the *Pioneering Metallurgy* fieldwork and in the very early days of this fieldwork, it was not possible to clearly locate the descendants of the iron-

smelters in the landscape. As I explain elsewhere (Chapter 6.1), Iron-smelters were considered to belong to a low caste on the fringes of the rural hierarchy of Telangana. With the decline in smelting, the iron-smelters and their descendants have become regular village blacksmiths (*Kammari*), shedding their smelter identity and with it their identity term (*Mudda Kammari*). Therefore family genealogies were the only entry point through which more *Mudda Kammari* families could be identified in the region. A total of 15 family genealogies were collected. Most of these go back to three generations from the present, when smelting was still prevalent, and when their relative isolation in social and physical space led *Mudda Kammari* families to intermarry only with each other.

For collecting the genealogies in the field, we normally asked the interlocutors about their family and what each member of the family did in their own generation. We then moved from there to the generations before them. Finally we asked about the succeeding generations. Special emphasis was laid on understanding how marriages took place. Therefore we also asked in detail about the families they married into. This was done in a conversational way to make it informal. Many of my interlocutors were actually forthcoming about providing the information about their families.

#### **4.3.6 Storing the data**

##### ***Field notes, interviews and informal interactions***

Not all the notes collected in the field can be transcribed digitally and a portion remain in manuscript form. However, all formal interviews were transcribed and are presented as Appendix 1 in Part II of this thesis. Informal conversations and field observations remain



in handwritten format in my field notebooks. These were not digitized to prevent the privacy and integrity of my interlocutors should the computer be hacked and the data made accessible to unauthorised use. The interviews presented in Appendix 1 are securely stored in two external hard-drives in password-protected folders as protection from unauthorized use of the data.

### ***Images***

After each day of fieldwork, images were uploaded onto the computer and organised in folders bearing the dates and the names of the villages. However, to prevent these from hacking or other forms of unauthorized use, the image folders were immediately removed and stored in two separate back-up drives in password protected folders.

### ***Sketches***

Sketches of blacksmith workshops (Appendix 2) were digitally reproduced with the help of Adobe Illustrator software. These are also stored in the two separate back-up discs mentioned above.

### ***Mapping***

GPS waypoints were uploaded onto Google Earth and stored in individual, dated folders after each day's fieldwork. A GPS log was maintained to record the details of each location. The waypoints were later used to create several maps on the QGIS platform to facilitate geospatial analysis of the collected data. The QGIS basemap for the study area was created after downloading satellite maps from the United States Geological Survey (USGS) website. These are licensed for academic use.

## ***Genealogies***

Fresh copies of the genealogies were drawn by hand after the end of all PhD fieldwork. These were then digitized using the “Family Tree Maker 3” software and stored in password-protected folders in the back-up discs.

### **4.4 Archaeological data**

Archaeological survey was not the main focus of this study. Therefore, a majority of the archaeological data referred to in this thesis comes from the *Pioneering Metallurgy* fieldwork and prior fieldwork by Thelma Lowe (Chapter 2.3.1). However, there were occasions where new locations with slag or crucible heaps were identified and preliminary recording of their location and characteristics were made.

To maintain consistency with the *Pioneering Metallurgy* database, a date-location format was followed in recording the archaeometallurgical sites. Following this method each archaeological feature in these locations was assigned a unique date-location number. For example, each slag heap, furnace remains and geological feature (such as a dry stream-bed) in one smelting cluster inside the Allampally forest was assigned a unique date-location number ranging from 27-04-14 (1) to 27-04-14 (28). The number within the brackets is the number of the archaeological or geological feature in the smelting cluster, whereas the one preceding it is the date on which the location was recorded. GPS waypoints were also recorded for each of these date-locations.

These clusters were described in detail in the field notes, and accompanied with rough sketches of their spatial layout. Finally, images of individual date-locations as well as

panoramic images of the entire cluster were taken. While the site descriptions and sketches remained in hand-written format in the field notebooks, the images and GPS waypoints were stored using the same method discussed in 4.3.6 above.

Archaeological samples were not collected, as the Archaeological Survey of India did not permit collection of samples during my fieldwork.

## **4.5 Archival research**

Archival research was an essential component of this project.

### **4.5.1 Eyewitness accounts and gazetteers**

Eyewitness accounts and government gazetteers of iron-smelting and crucible steel making in peninsular India were studied to understand the organisation, technology and social context of production in the 19<sup>th</sup> century. These documents contain the personal insights and recommendations of officers, which were later used to justify the implementation of the forest laws that caused the decline in pre-industrial iron and steel manufacturing.

A majority of these documents have been consulted earlier by other historians and archaeologists studying pre-industrial iron-working. Scanned copies of all of these texts were available from the open access platform [www.archive.org](http://www.archive.org). All of the available editions of each text were downloaded and relevant sections were compared between different editions to minimise the chances of misinterpretation of the data. This data has been used to interpret the organization of production and the technology of iron-smelting in the study area. Detailed discussion can be found in Part A of this thesis.

#### 4.5.2 Colonial forest legislations and trade documents

Traditionally, the strict implementation of colonial forest legislations and import of relatively cheap iron and steel produced in European industries have been seen as the primary reasons for the decline in iron-smelting in the colonised countries of Africa and the Indian sub-continent. To examine this, copies of the colonial forest legislations of 1865, 1878 and 1927 were studied in detail and the possible implications of the implementation of these laws on pre-industrial iron-smelting were noted. In addition, to quantify the volume of the importation of industrial iron and steel to India since the mid-19<sup>th</sup> century, the official annual import statistics of the British Indian government were consulted for each year between 1868 and 1920. While the scanned copies of forest legislations were accessed via [www.archive.org](http://www.archive.org), the import statistics were obtained from the Digital South Asia Library (DSAL) of the University of Chicago.

#### 4.5.3 Newspapers

A knowledge of the discussions regarding India's indigenous iron and steel production, and debates on industrializing the manufacture of iron and steel in India was essential to contextualize the decline of iron-smelting in the sub-continent in general and Telangana in particular in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Since a majority of these debates took place and decisions were made at the centre of the British Empire in England, 19<sup>th</sup> century British newspapers were consulted. A month-long online access to the British Library's newspaper archives was purchased. During this month-long research, 36 newspaper articles were identified that discussed the viability of industrializing the production of iron and steel in India and its benefits for England.

These newspaper articles, dating between 1820 and 1860, provided important insights into the formation of British public opinion on this topic.

#### **4.5.4 Colonial censuses and “Castes and Tribes” studies**

Colonial censuses have been subject to academic critiques from anthropologists, sociologists and historians of South Asia over the last three decades. The censuses were seen by the post-colonial scholarship as tools employed by the colonial administration to enumerate and understand diverse social categories in India. This, on the other hand, created colonial ontologies, simplifying the diversity by dividing society into strict caste-based categories. Many scholars (e.g. Inden 1990, Dirks 1992) argue that the idea of a heavily hierarchized caste-based society in India is a creation of this colonial imagination, quantified through the colonial censuses and qualified by early anthropological studies that followed the “Castes and Tribes” model (Chapter 1.4.1 & Chapter 5).

Despite their major failings, the colonial censuses and anthropological literature provide crucial insight into the formation of caste or group identities in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. The colonial Census Commissioners were surprisingly reflexive about the inconsistencies in the census data, especially in relation to caste and occupation, and mentioned these at the very beginning of their publications.

During the data collection process, the enumerators were required to ask every individual about their caste identity. This provided an opportunity for the individuals to express their own identities. For several subaltern social groups, the colonial list-making

exercise through the census and “caste and tribe” studies were an opportunity to unite and improve their social position. Consequently, individuals belonging to certain groups diligently answered these questions in specific ways in order to forge new alliances and engineer new group identities (Chapter 5). This identity creation process can only be accessed through comparative chronological reading of colonial censuses of a region.

To examine the process of the creation of iron-worker identity in Telangana, I meticulously studied the Hyderabad State censuses of 1891, 1901, 1911, 1921 and 1931. To minimize the chances of misinterpretation of the enumerated data about castes, the variations in data collection and categorisation methods employed during each census were noted. However, the data on castes for the 1891 and 1911 censuses were rejected due to ambiguity in the methods in which the data were collected and categories created. The censuses were accessed through the West Bengal State Archives in Kolkata and [www.archive.org](http://www.archive.org).

#### **4.6 Conclusion**

The analysis presented in this thesis draws data from the three discrete datasets discussed above: ethnographic, archaeological and archival. It is expected that approaching the relationship between technology/craft, people, and space from these three angles will facilitate a holistic and nuanced understanding of the evolution of this relationship over the last 150 years. Ethnographic research provided a detailed insight into the memories and present socio-cultural and economic dynamics of the iron-working community in Telangana. However, due to the temporal limitations of living memory, this information is not sufficient for crafting analogical models to interpret the

archaeometallurgical record of pre-industrial iron-working or to discern the technology/craft-people-space relationship in the past. The colonial documents fill in these gaps by adding crucial historical context to this study.

## CHAPTER 5

### THEORIES: CRAFT, IDENTITY AND POWER

#### 5.1 Introduction

In this chapter I will describe the theoretical framework of the present thesis. In the following sections I will introduce three key theoretical concepts that have been employed to investigate the technology-people-space relationship in this study. The first is the concept of specialized craft production in archaeology. Degree of craft specialization and the nature of control over specialized production and distribution of different ritual and prestige items connected to religious bodies and the ruling elite have been extensively studied in academic archaeology. Specialized production of craft goods is treated as **a primary indicator** of the existence of complex societies, and are crucial in understanding the nature of the socio-economic and political structures of past societies (Sinopoli, 2003:13). In this thesis, craft production is approached through the study of parameters of specialization following the theoretical model proposed by Costin (1991). In 5.2, I will trace the development of the theoretical parameters for studying the complexity of past craft specialization since the introduction of the concept by Van der Leeuw (1977), subsequently fine-tuned by Peacock (1982) and finally expanded and refined by Costin (1991).

In 5.3 I will introduce the second key concept, that of *Caste*, which is crucial in understanding and defining the identity and position of the iron-smelters and blacksmiths of rural northern Telangana. Academic literature on the caste system



describes it to be a fundamental characteristic of the Brahminical Hindu society in India. Despite conscious and deliberate attempts by the Government of India to eliminate caste based identity formation, it continues to be one of the cornerstones of identity creation and articulation in the country. Since the publication of Abbe Dubois' (2007 [1814]) eponymous compendium on Hindu manners, customs and ceremonies, the study and interpretation of the nature and function of the caste system became a major way of studying and understanding Indian society. As a result, an immense volume of research on the nature and aspects of caste has been produced in academic anthropology and sociology. Despite the diversity of the research themes on caste, a majority of these studies converge on a single underlying research objective: to define what caste actually is. It is beyond the scope of this work to explore a complex set of nuances addressed by these debates. Instead, this study will trace the historical development of the caste System, as we know it today. By tracing the historical development of the origins of the modern caste System, I will show that the caste system is a mechanism consciously employed by many social groups to define their place in regional power relations, and create horizontal alliances with other similarly placed groups in the regional and trans-regional levels since the 17<sup>th</sup> century. These groups acted as conscious agents over centuries to renegotiate their position in the power structure, first with regional rulers, and then in the pan-Indian context with the establishment of the English East India Company's rule. This trend of casting and recasting of caste-based identities continue to this day under the umbrella of democracy, more than six decades after Indian Independence, as the present research with the iron-working communities of northern Telangana unequivocally conveys.

Thirdly, in the last section (5.4), I will propose that caste can be best defined when it is studied in relation to the Bourdieusean theory of practice and the Foucauldian concept of power. The concepts of *habitus*, *field* and power will be introduced. Finally, I will argue that it is impossible to have an overarching, universally accepted framework to study caste. Caste is dynamic by nature and the concept can be manipulated by different social groups and employed according to their own perceptions of power and identity. Therefore, I will argue that caste cannot be studied as an abstract concept, and can only be understood when observed in action in individual socio-economic contexts. Caste will be conceived as an overarching field of struggle for resources and power, which constitutes of several intersecting subfields of struggle for power.

## **5.2 Parameters to study craft specialization in archaeology**

The study of specialized craft production in archaeology has been approached from the perspectives of material culture, symbolism, and artefact typology, and technology, social and technological organization of production, degree of specialization, exchange and complexity. Several influential publications since 1970s have established the discourse on craft specialization and organization of production in archaeology.

Costin identified the fundamental difference in defining and studying craft production and craft specialization in her influential and widely cited article on craft specialization (1991:3). According to Costin, craft production is the process of transformation of raw materials into usable objects. On the other hand, craft specialization is the process in which this transformation is organized. She argued that what distinguishes specialized craft production from non-specialized production is the amount of time spent on the

activity; the proportion of subsistence gathered from it; and the payment in money or in kind by the consumers who seek the specialized services of the craft producers.

Van der Leeuw (1977, 1984), Peacock (1982) and Costin (2001, 1991, 1998b, 1995, 2000) have, therefore approached craft specialization with focus on the typological classification of units of production (Fig. 5.1) based on the size of the production units and intensity and scale of production. On the other hand, D'Altroy et al. (1985), Brumfiel and Earle (1987), Earle (1987), D'Altroy (1992) and Clark and Parry (1990) and Clark and Houston (1998) studied specialized craft production in relation to social and political complexity. The relationship between craft producers and political institutions and elites were explored in terms of the control these political magnates exercised on the craft producers of different types.

Adequate historical information is not available to study iron-working in northern Telangana from the perspective of the socio-political complexity of the region. Iron and steel must have been in constant demand to supply the arsenals of the state (the Kingdom of Golconda and later The Nizam) and its local military elites, which allowed a certain group of specialized smiths (and smelters) to forge direct relationships with different local and regional nodes of power. However, these networks have been gradually disrupted since the colonial period. By the middle of the 19<sup>th</sup> century, the British colonial authorities had succeeded in attaining unprecedented political stability and peace in South India, by forging alliances with princely states of different sizes. The lack of warfare reduced the constant demand for weapons, which must have had an adverse effect on the groups of iron-workers who supplied weapons to these nodes of

power. These old supply and patronage networks were completely destroyed after the abolition of the land holding rights of the traditional feudal magnates brought about by the constitution of independent India in the 1950s. Therefore, during the fieldwork for the present project, it was almost impossible to trace and reconstruct these pre-existing supply and patronage networks with the local and regional political authorities from the living memory of the iron-workers in the study area. On the other hand, ample archaeological and ethnographic evidence survives to allow the study of specialized production of iron through the parameters of specialization proposed by Leeuw (1977, 1984) and subsequently refined and expanded by Peacock (1982) and Costin (1991).

### **5.2.1 Leeuw's and Peacock's typologies of specialized production units**

#### ***Leeuw***

Leeuw's (1977, 1984) classification of the typological units of production is based on his study of ceramics. These production unit typologies are based on scale and intensity of production in each unit. The distinguishing features between each typological unit of production were the size of production unit; the number of customers who were served by the unit and the complexity of technology used in manufacture. Based on these parameters, Leeuw proposed a five-part typology of, starting from the least specialized production units at the base to the most specialized at the top of the scale.

At the base of Leeuw's five-part typology (Fig. 5.1) is the *Household Production context*. In these kinds of production unit, the craftsmen produce goods exclusively for consumption in their own household. No surplus goods are produced for the market or

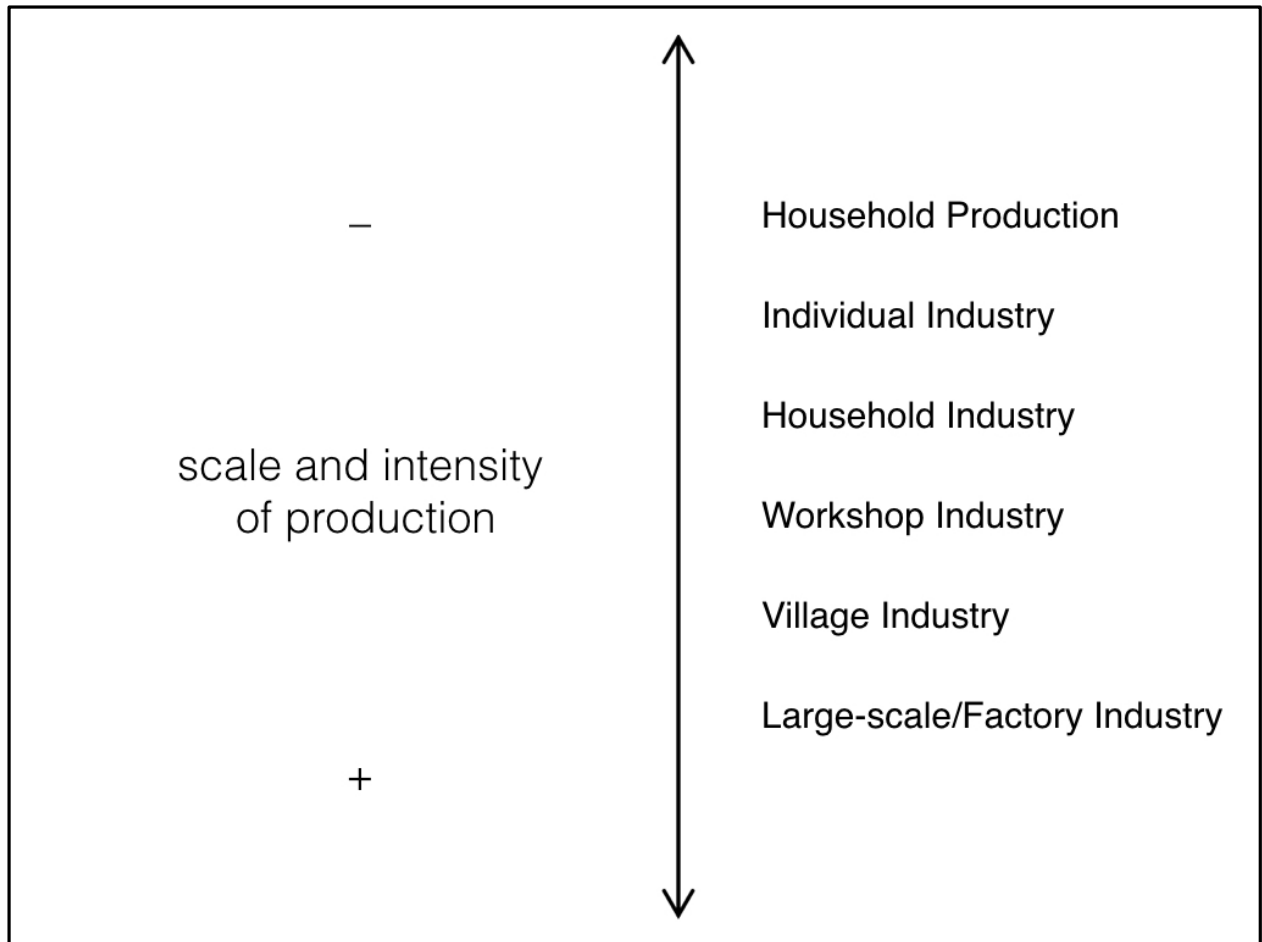
for anyone outside the immediate household. The specialization is therefore rudimentary and production happens on a very part time basis and therefore the technology used in these types of production units are rudimentary and experimentation with new technologies are mostly non-existent (*ibid*).

In the *Household Industry* type of production unit however, artisans produce for the local community and hence the consumption of craft products extends beyond the artisan's household. However, Leeuw argues that at this level, craft production is still a part time activity and does not serve as the primary occupation of the producer. Since the craft producers in these types of units produce for consumption beyond their household, the technology employed is more sophisticated than the former category. However, Leeuw argues that technological innovation and experimentation in these types of production contexts is almost non-existent due to the lack of the time spent on the craft and limited demand for the products.

*Workshop Industry* is the third level of production in Leeuw's typology. At this level, production is organised in a formal workshop space, which may or may not be attached to the domestic space. Production occurs on an almost full time basis and provides the primary source, if not the main source of income for the craft producer. Division of labour and some kin based apprenticeship process could be observed at this level. However, consumption at this level is still restricted within local boundaries.

The fourth level of workshop, in Leeuw's typology is termed as *Village Industry*. Production here is organized at community level in villages, where definite communities of producers have their own workshops and produce for non-local markets. Production

here occurs full time and on a large scale and each stage of the production process is well defined and technology is advanced and the producers invest on technological innovation. The producers at this level might be linked with wider markets through middlemen and merchants.



*Figure 5.1 Leeuw's scale and intensity based typology of production units (from Costin, 1991:6)*

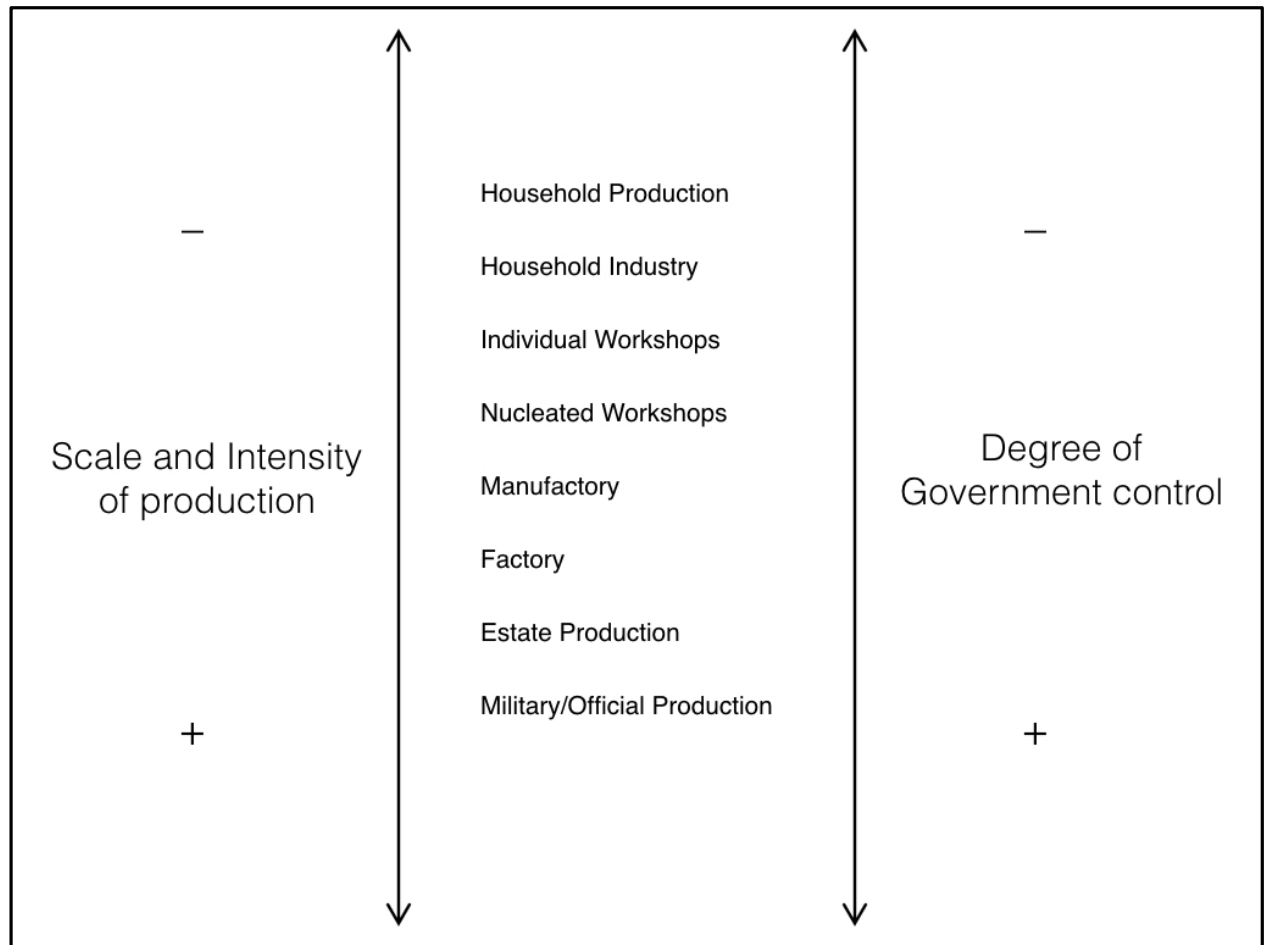
The final category of production is *Large-Scale/Factory Industry*. Here production occurs in large workshops or factories completely isolated from the domestic context of the craft producers. The production here is organised at a massive scale requiring a

large number of labour, and investment on technology and raw material acquisition. The producers in this workshop context might not be related according to kinship ties and different stages of production and their roles in them are very well defined. There is also a very high level of supervision and control in this type of production context.

### ***Peacock***

Peacock (1982) refined Leeuw's scale and intensity based typological units in his ethnoarchaeological study of Roman pottery. In classifying the typology of production units, he incorporated the degree of elite or government control over specialized craft production along with the scale and intensity of output in the production units in his typology (Fig. 5.2).

Earle (1981) addressed the issue of government sponsorship/involvement in specialized production for the first time and proposed a clear distinction between attached and independent production contexts. He suggested that the elite or the government closely controlled production and distribution of special, highly valued goods produced for elite consumption. On the other hand, the independent craft specialists, not directly controlled by the government produced utilitarian goods for wider consumption. Incorporating the degree of government control with Leewu's scale and intensity-based classification, Peacock presented an eight-part typology to study specialized craft production (Fig. 5.2).



*Figure 5.2 Peacock's (1982) classification of production units incorporating the degree of government control with the scale and intensity of production.*

### 5.2.2 Costin's general parameters to study specialized production

Cathy Costin (1991) reviewed the above typological models to study specialized craft production in archaeology in an influential and widely-cited article. In this paper, she brought out some basic drawbacks within the existing typologies. Costin pointed out that the fundamental problem in the existing typologies were their ambiguity in the terms



used to different various typological units proposed by different scholars studying craft specialization (1991:6-7).

### ***Production units***

Costin's objective, therefore, was to address this ambiguity and propose a refined and widely applicable typology of specialized production units based on archaeological and ethnographic research. In order to achieve this, she proposed an eight-part typology (Fig. 5.3) based on social, economic, political and environmental variables that affect specialized craft production (1991:7).

Unlike Leeuw and Peacock, Costin discounted the household units that produce for their own consumption. Since craft goods produced in these contexts are available for wider consumption, the organization of production and the degree of specialization always remains at a minimum level. Her eight-part typology of specialization and organization of production of craft-goods, therefore, begins with *Individual Specialization*, where autonomous individual artisans or artisan-households produce for unrestricted consumption in local markets. The next unit, *Dispersed Workshop*, consist of larger workshop-based production units where craft-goods are produced to meet the demands for local consumption (Costin, 1991:8). In both of these units, production is targeted only at the local markets, and the producers are often part time specialists. These types of craft-producers are generally present in each village to meet the demands of immediate rural community.

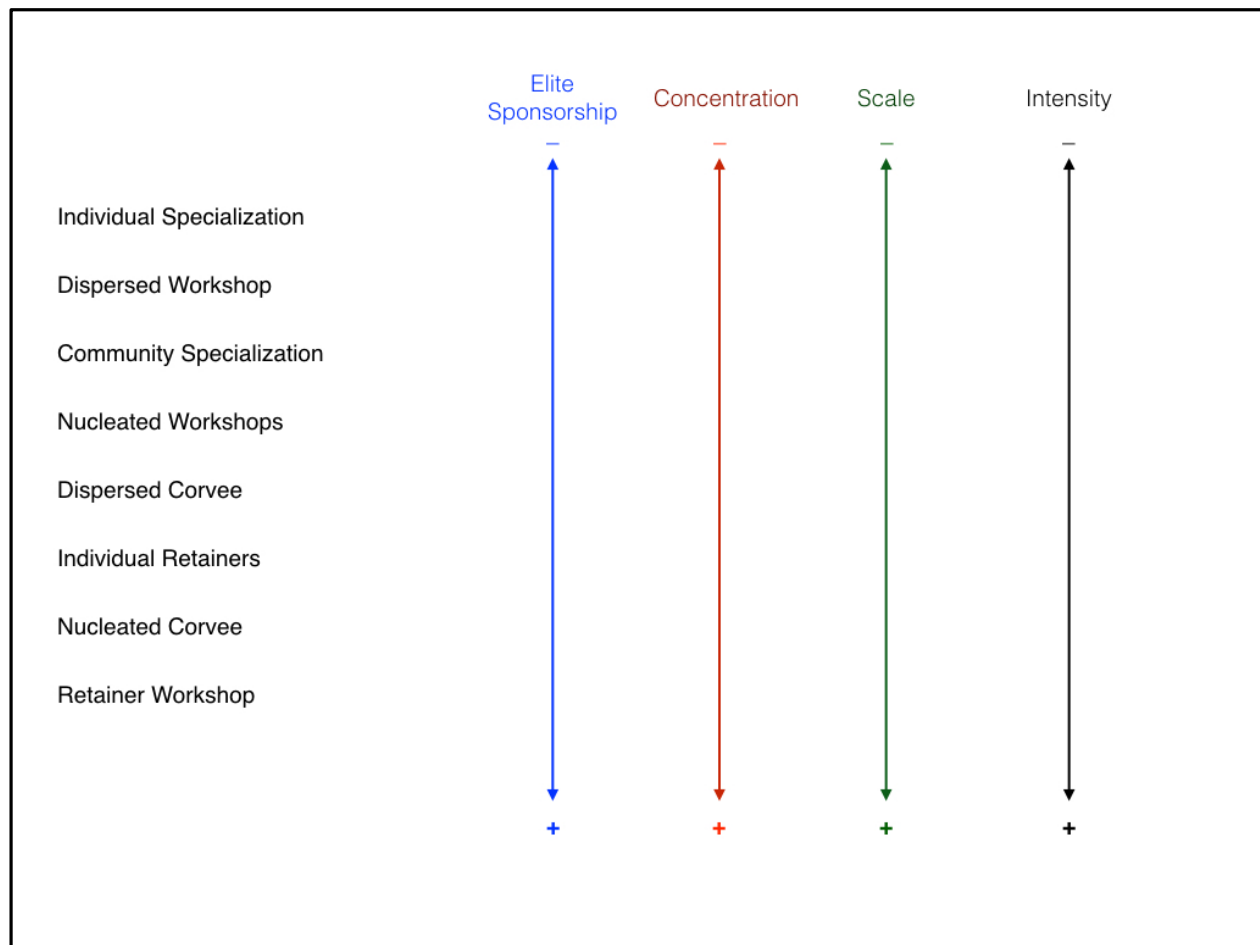


Figure 5.3 Costin's (1991) typology of production units with four parameters used as variables to study the degree of specialization.

The next two units, *Community Specialization* and *Nucleated Worksho*, are production units which manufacture craft-goods for unrestricted regional consumption.

Characteristically, the artisans operating in these units come from a single highly-specialized community, who are often based in a geographically constrained area, and provide for the demands for their specialized craft-goods for regional markets.

According to Costin in *Community Specialization*, production occurs in individual, household-based units conducted by the artisans belonging to the specialist community.

On the other hand, if the members of the specialist community come together to produce in a workshop setting, it is considered a *Nucleated Workshop* (1991:8).

Costin's final four categories of organization are based on different types of production units controlled and supervised by the elite or government. Part-time individual artisans based in household units, producing for the elite or the government institutions are categorized as *Dispersed Corvee*. If such part-time production occurs in a factory setting, closely administered by the government, then this kind of production is categorized as *Nucleated Corvee*. *Individual Retainers* comprises of those artisans who produce for the elite and the government institutions on a full-time basis. Here the government closely administers the production. Finally, in a *Retainer Workshop*, a group of full-time craft specialists come together in a highly-centralized facility and produce under constant supervision of the government and the elite (1991:8-9).

### ***Parameters***

To study specialized craft production in the archaeological record, Costin suggested four distinct parameter values (Fig. 5.3). *Scale* corresponds with the size and scope of production unit and logic of labour recruitment. *Concentration* identifies different patterns of spatial distribution of craft specialists in a landscape. *Intensity* refers to the amount of time a craft producer spends on his craft—whether the production unit functions on a full time or a part time basis. Finally, *context* refers to the amount of external bureaucratic or managerial control over craft production and consumption.

She argued that the degree of occurrence of these parameter values in the archaeological record could help in understanding why different types of production unit occur within different social, environmental, economic and political contexts (Costin, 1991:9). Although it is generally perceived that specialized craft production advances from the lowest level of complexity to the highest level based on increase in specialization and political control which in turn affects the nature of production unit, one must be cautious while making these straightforward generalizations. Though the parameters and typologies of specialized craft production provides a useful explanatory model to study craft specialization, simple generalizations would be very misleading. Different levels of production and specialization can coexist within the same cultural contexts catering to different kinds of consumers.

### **5.2.3 Variations on Production Complexity: The Telangana Evidence**

This is evident in the context of this research in northern Telangana. There are different groups of specialized producers involved in the craft of iron-working in northern Telangana (Chapter 6.3). While all of these different iron-working groups are presently known as *Kammari*, an umbrella term, ethnoarchaeological records explored during this research identified subtle differences in which production was organized between these groups of specialists, and their consumers. The *Kammari* or the village blacksmiths (Chapter 6.3.2) are the most socially visible group among the iron-workers. Their production is organized within individual households, located in separate workshop spaces within their residential compounds. A majority of the *Kammari* currently work on a part-time basis for the most part of the year. Their workshops are only active on a full-

time basis prior to the start of the agricultural season in the May-June. Each *Kammari* has a fixed set of agriculturalist consumers from within the immediate village community, and local social convention prevents them from producing for anyone beyond this traditionally fixed group of consumers. In one sense, this can be considered to be a variant of attached specialization, where the *Kammari* are bound by convention to only produce for a certain number of farmer families.

The *Shisha Kammari* (Chapter 6.3.5), on the other hand, are a group of itinerant tribal blacksmiths, who produce for wide variety consumers in urban and rural markets. The implements forged by the *Shisha Kammari* are sold in the weekly markets across the region since they are not tied up by conventional contract. The *Shisha Kammari* production is often organized in individual family based workshops, with no clear division of domestic and working space. The *Mudda Kammari* (Chapter 6.3.1) are a group of erstwhile iron-smelters in northern Telangana. For environmental reasons they are nucleated in small kin-based groups in villages in proximity with the source of iron-ore and charcoal. These kin-based groups collectively organized iron-smelting in a workshop context, and the raw iron blooms produced were transported to the local and regional markets for consumption. There were several other groups of iron-workers, the presence of whom can be discerned from the living memory of the extant iron-workers of the study area. Some of these groups specialized in production of swords (6.3.3), guns, gun and cannon shots. The production of these individual specialists were supervised and controlled directly by Hyderabad State (under the Nizam) through its local elites, who were also the primary, if not, the only consumers of their products.



*Figure 5.4 A kamhari workshop in the study area. (taken by the author)*

### **5.3 The Historical Origins of the Modern Caste System in India**

On 17<sup>th</sup> January 2016, Rohith Vemula, a PhD student at the Hyderabad Central University in Telangana committed suicide in protest against the alleged “casteist” behavior of the university authorities against the *Dalit* students, an umbrella term used for identifying “untouchables” or “Scheduled Caste” groups in India. Rohith’s death renewed a long-standing controversy in Indian Hindu society about caste identity and the power (or lack of it) that comes with it. Although the Indian Constitution prohibits



discrimination based on caste, and advocates the eradication of caste-based identities, caste continues to be the cornerstone of Hindu identity in India.

### **5.3.1 Academic discourses on the Caste System**

In Sanskrit *Sastric* texts such as the *Manusmriti* and the *Bhagavad Gita*, the stratified ordering of the Hindu society is projected as the fundamental basis for the proper functioning of the entire universe. The *Manusmriti* is a compilation of verses on morality, code of conduct and spiritual obligations. This text, originally composed around the 1<sup>st</sup> century CE, outlines the origin of a four-fold *Varna* system that holds Hindu social and cosmological order together. Each social category or *Varna* in this system has their own distinct moral quality and an occupation to follow. The *Manusmriti* then continues with injunctions and codes of conduct for each group, and in what appears to be later interpolations, prohibits intermixing through marriage between the four *Varnas*.

As I mentioned earlier (5.1) the academic discourse on caste, despite their divergent approaches, are all targeted at understanding the fundamental nature of the caste system. Sociological and anthropological studies on caste have approached the topic from three different angles.

#### ***The Dumontian view of Hindu Caste Society***

First is a collection of academic work published either in support or arguing against the Dumontian approach to the Hindu Caste System (Dumont, 1980). Louis Dumont, in his seminal work on the caste system, took a textual view of Hindu society. Based on the *Sastric* texts and injunctions on caste, Dumont proposed an overarching synopsis of

Hindu social order. Going through these texts, Dumont identified several recurring core concepts or patterns of thought which are paired in binary oppositions (Bayly, 1999:15).

Dumont settled on the binary of purity and pollution as the most important among the pairs of binaries. In his hypothesis of the caste Hindu society, Dumont suggested that the concept of purity and pollution pervaded all aspects of Hindu life and provided important measurements of rank and status for a Hindu (Bayly, 1999:15). According to Dumont, the Hindus rank all social beings and each and every aspect of life according to the overarching principle of purity and pollution and the internal logic of the four-fold caste hierarchy is only discernible based on this binary. To him, the Brahmin's position at the top of the Hindu caste hierarchy is unassailable because the religious scriptures render them inherently pure. On the other hand, the *Sudras* or the untouchables can only occupy the lowest rank as they work both literally, and ritually, as pollution removers to the higher castes. According to Dumont, the Hindus inherited a shared ideology of a hierarchized society; therefore, a Hindu imagination of society continues to be inherently hierarchical (Bayly, 1999:19).

Dumont's thesis on caste, even at its face value, is deeply flawed. It presents a highly generalized picture of Hindu society based on *Sastric* texts, and it does not take ethnographic realities of caste, status and power into account. Dumont's version of Hinduism is universal, and unchanging, guided by a strict set of overarching principles. This portrays the pan-South Asian Hindu society and its internal structures in continuous stasis.



Several academic works have been published following Dumont, supporting or refuting his hypothesis. Veena Das (1982) and Burghart (1978) added complexity to Dumont's binary by adding several other types of fundamental oppositions. Burghart, for example, improved on Dumontian binaries by introducing asceticism as a third element, that he thought completed the Hindu worldview regarding the supreme human values of virtue and harmony (1978). Burghart challenged Dumont's proposition that the Brahmins were clearly superior in the caste hierarchy on the basis of purity. Instead, Burghart proposed that superiority in caste hierarchy was determined by the group that could effectively incorporate the three virtues of a *Dharmic* caste life, embodied by the Brahmins; ascetic renunciation and finally, that of a just king. Embodying all three virtues, according to Burghart, was only possible by the king, who according to him, enjoyed the highest position in Hindu caste order, even above the Brahmins (Bayly, 1999:16-17). Although their work is more matured than Dumont, being based on both textual evidence and ethnographic reality, these scholars fail to have a broad view of Hinduism, and the influence of other religious and cultural traditions of the subcontinent on Hindu social thought (Bayly, 1999:18).

### ***Caste as a colonial construct***

Another group of scholars, primarily consisting of historians and anthropologists, challenge the concept of the eternal existence of the modern caste system as a fundamental aspect of Hindu social order. Based on ethnographic and archival evidence, these scholars argue that caste was just one among several types of identities in pre-colonial society, and the king had power to reorder social hierarchies at

his will. Colonialism, on the other hand, created a new form of civil society in India, with caste as its foundational unit (Dirks, 1992:59-60).

Dirks (1992), Inden (1990), Nandy (1983), Katten (2005) and other scholars argue that the colonial administrators had initially found India unmanageable due to its extremely complex social and cultural formations. In order to turn this into something more manageable, colonial administrators imposed simple, overarching structures (Nandy, 1983:xiv). The identification of caste as the dominant foundational and cohesive principle of Indian society, was an integral part of this process (Dirks, 1992:61). The colonial project of knowledge creation and dissemination about a caste based Indian society was done first through translation of the *Manusmriti* into English. Later, this formed the foundation for the creation of the colonial legal code such as to understand and solve caste-based disputes. Finally, this text based view of Hindu caste system became entrenched through caste-based census enumerations and anthropological works on “Castes and Tribes” model (Dirks, 1992, Inden, 1990). The installation of caste hierarchy as the central force of Indian society, to simplify the social complexity, had ultimately given rise to the modern caste system in India.

However, the inherent problem in the above two approaches to study the Indian caste system is that these investigate only one among many aspects of the caste system. Caste is a dynamic and very complex aspect of identity in South Asia, and it underwent several significant changes in the course of time. In order to understand these important layers and shifts in caste narratives, it is more effective to approach the subject through historical processes. Tracing the entire historical process, which led to the formation of

modern caste-identities in India, is what sets Bayly's (1999) thesis apart from other scholars. It incorporates all the above academic approaches to caste, woven into a coherent historical narrative. This will be discussed in detail in the following section.

### **5.3.2 Historical processes leading to the origin of the modern caste identities**

Bayly (1999) in her pioneering thesis, traced the political, economic and social processes that led to the formation of the modern caste identities in the Indian sub-continent. In this work, she traced the historical developments in society, politics and economics since the 18<sup>th</sup> century, immediately after the fall of the Mughal Empire. The central hypothesis of Bayly's work is that many, often trans-regional occupational groups come together to form caste-like entities to protect their interests in the face of socio-economic and political uncertainties. She reinforced her hypothesis with several case studies from the 18<sup>th</sup> century to the present day, where socio-economic and political crises contributed to the crystallization of the caste-based identities.

#### ***Social formations under post-Mughal successor regimes***

Bayly pointed out that society in different parts of the sub-continent was becoming rapidly caste-like in the fast fragmenting Mughal polity of the late 17<sup>th</sup> and early 18<sup>th</sup> centuries. The Mughal successor regimes, like the Marathas under Shivaji, and other Mughal ruling elites, who had successfully carved out independent principalities in western, central and southern India, often subscribed to the symbols and languages of caste to legitimize their claims as rulers, and establish dominance over their kingdom (1999:30). In order to legitimize their coercive power and assert authority over the

dependent cultivators, these insecure elites often invoked their fictitious associations with illustrious Rajput dynasts who embodied the ideals of *Kshatriya* (warrior caste) kingship (1999:35). In order to successfully appropriate the *Kshatriya* Rajput identity, these regional chiefs and warlords, who were often of non-*Kshatriya* origin, sought the services of the Brahmin ritual specialists. The Brahmin specialists were expected to bring legitimacy to the fledgling power of these elites by making horoscopic associations between them and Rajput ruling families (1999:35-39). This was done through ritual rebirth of the rulers to *Kshatriya*-hood, as in the case of Shivaji Bhonsle (c. 1627-1680), the great Maratha warlord (1999:57-58). This ritual legitimization of one's genealogy was generally followed by providing generous donations and gifts to the temples and the priests in the holy Hindu cities of Varanasi and Allahabad. The services of the ritual specialists, therefore, became fundamentally important to these new elite.

Another method, by which the elites of Mughal successor regimes sought to legitimize and perpetuate their power was by establishing horizontal matrimonial ties with either Rajput families, or with the ruling elite of other successor states. Several arms-bearing groups became highly important for these warring regimes, as the expansion of their power and maintenance of their authority by securing the blurred boundaries and collection of revenues from the peasants depended on these arms-bearing groups. Therefore, those groups, that could not claim association with the Rajput ruling elite, were forming horizontal associations through marriage and becoming more caste-like during this period, with a strictly implemented norm of endogamy (1999:31).

Similarly, groups of merchants, who were concerned about maintaining established credit networks, at the time of disruptive political conditions, were also coalescing into caste-like endogamous units. Finally, the peasants, who were coerced for revenue by the new ruling elites, were uniting to protect their interests. Although they may not have been comfortable within emerging power structures, these groups felt more secure having a well-defined, even though lowly place, within this emerging social order to which the powerful elites were subscribing (1999:31).

Bayly rightly argues that this development in the post-Mughal successor regimes did not imply that these ruling elites invented the caste system as we know it today. However, by associating their values with the heroic *Kshatriya* ideals of the pre-Mughal Rajput regimes, and by heavily borrowing from the semiotics of power used by the Rajput ruling class, these new elites were making the ideals of “meritorious” and “unmeritorious” births widely known in society. By the early 18<sup>th</sup> century, social classifications based on these ideals were becoming more entrenched and rigid (1999:40). However, caste-like social entities were restricted to the regions ruled by these elites and did not yet have a pan-Indic value. Tribal communities were more or less excluded from this emerging social order, and even when areas with a majority tribal population were ruled by a *Kshatriya*-ideal-invoking Hindu dynast, tribal social systems and religions were normally respected (see Bayly, 1999:79-80 for the Nagpur-based Bhonsle dynasty and their dealings with the tribal leaders of Chhotanagpur).

### ***Creation of mythologized caste-histories***

For the Hindu subjects of these new, Brahmin backed elites, this re-definition of social groups provided a chance to improve their position in prestige and power networks. Therefore, this period also saw a rise in the production of mythologized caste-histories, in oral or written forms, particularly from the subalterns in society. A majority of these caste-histories promote that each of the subaltern castes has either Brahmin or *Kshatriya* origins. Most of these caste-histories adopt a similar discursive technique that first describes the original caste-identity of these groups (Brahmin or Kshatriya), and then proceeds to narrate a story in which a major Hindu deity, such as Vishnu or Shiva, had either asked them to choose their current profession by sacrificing their higher origins, or, they were forced to choose the current, lowly profession, being duped by a member of a higher caste.

In one such caste-history, *Mallapurana*, for example, the Jethimalla's, a caste in Gujarat specializing in traditional martial arts (*mallyavidya*), claim their origin from Brahmin ritual specialists. According to the *Mallapurana*, the Jethimalla's were taught *mallavidya* by Lord Krishna himself, who also advised them to abandon their calling as ritual specialists and take up *mallavidya* as a profession for the protection of Hinduism. The Brahmins of Gujarat, on the other hand, consider the Jethimalla's to be fallen Brahmins and hence, a low caste (Das 1968).

As we will see later in this work, the five artisan groups (blacksmith, carpenter, bronze smith, sculptor and goldsmith) of northern Telangana, collectively known as *Panchanamvaru*, claim that they have been personally created by Viswakarma, the

Hindu deity of specialized craft production. But a nexus between the kings and the Brahmins duped them by intoxicating them in carnal pleasures and non-vegetarian diet. Hence they lost their divine power, and are now merely doing servile work producing craft under the command of the landlords and the Brahmins. Brouwer (1995) also recorded a similar caste history prevalent among the Hindu artisan caste of northern Karnataka.

Although a majority of these caste-histories existed as oral traditions, some of them were reproduced in writing. In the emerging caste structure in the 17<sup>th</sup> and 18<sup>th</sup> centuries, regional caste-identities were in still in their formative stages. Therefore, there was constant conflict between interest groups wanting to elevate their social positions. The new elites were arbitrators of these disputes and they often asked the members of the petitioning caste to submit evidence to support their claimed status. The codification of caste-histories took place in these contexts, and the king emerged as a person with power to reorganize and legitimize regional social structures (Das, 1982).

### ***Frozen identities: Caste in colonial epistemology***

The English East India Company inherited a very complex society, as they subjugated the post-Mughal successor regimes in the Indian subcontinent since the mid 18<sup>th</sup> century. The social hierarchy and caste-titles were different in different regions of the subcontinent. Since the East India Company replaced the traditional elites they became the new “kings” in the eyes of their subjects in the areas directly ruled by the Company. This made Company officials, the principal arbitrators of the caste-based disputes. In order to understand and rule this complex society with conflicting identities, power and

prestige networks, the colonial rulers sought to simplify society. This was achieved initially with the help of their Brahmin aides, who explained and interpreted the four-fold Hindu *varna* system based on sacred texts (Dirks, 1992). This was later followed by the translation of these texts, like the *Manusmriti*, into English, and hence kicking-off the process for production of an English gaze-based-knowledge of Indian society, which comprised of four main endogamous castes (Brahmins, Kshatriyas, Vaishyas and Sudras), and numerous sub-castes within these main groups.

The colonial authorities decided not to interfere in the functioning of the Hindu caste-structure. However, the knowledge that text-based, and therefore anachronistic, understanding of 18<sup>th</sup> and 19<sup>th</sup> century Hindu society, that the colonial administrators relied on, and imposed, created immutable structures and began to freeze caste identities during this period (Inden, 1990, Dirks, 1992). These identities were further entrenched through the production of colonial anthropologies of India based on a “Castes and Tribes” model. Finally, the introduction of decennial censuses since 1881, where caste was used as a main category to classify the Indian population, entrenched caste-based identities among different groups to a greater extent. However, these colonial census operations also proved that the people did not lack agency. Members of several caste-groups who disagreed with the rank assigned to them in the censuses, came together and sent petitions to the census commissioners asking them for elevation in their caste-status in the census (Dirks, 1992). Several caste-groups formed their own formal caste-associations to argue for a better place in the caste hierarchy propagated by the censuses (Carroll, 1978). The first Viswabrahmin association, for example, was formed in Madras in 1893, following the publication of the second colonial



census report. Later, a pan-Indian Viswakarma Association was established in Calcutta in 1905. The purpose of both these associations were to unite and rally the artisan communities demanding a better position in the caste-hierarchy.

The production of colonial knowledge on caste, and later, the appropriation of that colonial knowledge to unite various regional communities (or sub-castes) under the umbrella of a single caste ideology (e.g. the Viswakarma/Viswabrahmin) led to a homogenization process in Indian society. Several numerically or economically disadvantaged communities shed their own unique identities and became part of larger communities as that provided them with relative security and a stable identity. The present research on the iron-working communities in northern Telangana explores this process of homogenization in detail. The *Kammari* and the *Mudda Kammari* iron-workers of the study area presently associate with the *Viswabrahmin* identity, an umbrella identity term which includes the five artisan communities of the entirety of South India. In this research, I will explore how several specialized groups of iron-workers scattered across the study area lost their unique identities and became homogenized and included in the *Viswabrahmin* identity of the present day. The above discussion on the historical process of the development of modern caste identities provides the foundation for this analysis.

#### **5.4 Discourses on Power**

Modern caste identity, as observed in the previous section, evolved out of the conscious attempts of different social groups to define their place in society since the 17<sup>th</sup> and 18<sup>th</sup> centuries. These groups often formed horizontal alliances with similarly placed

occupational groups in order to entrench their position in regional power structures. The subordinated groups came together to argue for better positions in the regional caste hierarchies. Caste identities, and caste-histories were therefore evidently articulated by different social groups as a mechanism to gain access to favours, prestige and resources in a period both immediately before and during colonial rule. Even after Independence, when caste was officially removed from the census and other government documents in an attempt to eradicate discrimination, caste-identities and very caste-like, ostensibly anti-caste, neo-Buddhist, Dalit identities continue to play a major role in national electoral politics and access to political power and socio-economic benefits in India. Therefore, it is relevant to discuss caste-identities in the light of current discourses on power.

Modern discourses on power approach the concept from two different angles. The first, and more dominant discourse is based on a Hobbesian conception of power as hegemonic reality concentrated in the hands of a sovereign, or a government. This strand seeks to understand the characteristics and hegemonic roles of different types of power. A second strand, which has increasingly gained popularity among post-structural scholars since the 1970s, is preoccupied with the strategic, decentralized nature of power. This discourse, based on Machiavelli, explores strategies in which power can be employed by different social groups to attain certain advantages (Clegg, 1989:21-36).

It is this second approach, embodied through the works of Foucault (1982, 1977) and Bourdieu (Swartz, 2012, Bourdieu, 1989), that is employed in this thesis to negotiate the

complex set of power networks that the iron-working groups of northern Telangana are historically engaged in. In the following pages, I will outline the Foucauldian concept of power, and Bourdieusean concepts of *Habitus* and *Field*, which is employed later in this thesis to analyse the iron-worker identities in northern Telangana. Although apparently thought to contradict each other, this research will show how these Foucauldian and Bourdieusean concepts can complement each other in understanding the evolving nature of identities for marginalized communities in India.

The Foucauldian concept of power and Bourdieu's theory of *Habitus* and *Field* will be defined in this section. In the following section, I will discuss how I used these apparently contradictory theoretical positions are employed together to understand the identity formation among the iron-worker groups in northern Telangana since the late 18<sup>th</sup> century.

#### **5.4.1 Foucault and Power**

The crucial entry point to Foucault's theory of power and power-relations is that power only exists when it is put to action. Power, according to Foucault, does not have an eternal existence. It can only effectively exist and achieve its objective if there is an external manifestation of power through enforceable laws, rules, regulations, as well as rituals. Power, in other words, is required to be performed. Therefore, as Foucault suggests, the best opportunities to study different forms of power in action, is through tracking the forms of resistance against an established network of power (1982:780-781). Since each individual, or group is in a subordinated relationship with the operators of power, resistances are attempts to dissociate from this power relation which has

been defined and imposed on them from above. The controllers of power then attempt to quell this opposition and maintain status quo by adopting several techniques such as knowledge creation, ritual performances, symbols, seduction, appeasement, and as a last resort, violence.

Power, therefore, is a set of actions that attempts to control the actions of others, to produce a desirable result (1982:786). In order to do that in the long term, those in power constantly adopt innovative techniques through which the subordinated groups are made aware of its constant existence. One way this is done is through manufacturing of knowledge about society and self. Power, according to Foucault, comes with some dividing practices, where individuals are divided within themselves and are divided from others. This manufactures an objective identity for the individual (1982:783). In order to bind an individual to this manufactured identity, those in power take the help of several symbols and meanings which provide a historical or mythical legitimacy to these manufactured identities. Repeated reinforcement of these symbols and entrenchment of their meanings ultimately binds an individual, or a group, to their own identity by a conscience of self-knowledge. With the change in the nature of power, some of these symbols are discarded, while a majority of others are adopted, reorganized and reinterpreted, leading to the production of new forms of knowledge and reorganization of power relations and identity.

#### **5.4.2 Bourdieu: *Habitus* and *Field***

*Habitus* and *Field* are the key concepts in Bourdieu's Theory of Practice (1977). The Theory of Practice seeks to address the long standing sociological problem of the

nature of the relationship between individual and society, in other words, between subject and object. To start with, Bourdieu criticizes the dual exclusivity between individual and society and seeks to transcend this duality through practice theory. Bourdieu maintains that social reality exists both within and without individuals, both in our minds and things. Therefore, to him, individual and society are not two separate forms of existence, external to one another. They are in fact two dimensions of the same reality (Swartz, 2012:96).

### ***Habitus***

The concept of Habitus interrogates these mutually penetrative realities. According to Bourdieu, Habitus causes an individual to internalize social experiences, conventions and perceptions from childhood. These internalized notions shape how individuals make sense of themselves in relation to society (Bourdieu, 1995). These notions help individuals figure out their position in a hierarchized social space and make horizontal and vertical associations with those situated in the same social category, and also with those above or below them in the hierarchy. Along with this basic understanding of one's place in society comes aspirations, expectations, symbols, beliefs, taboos, behaviors and performances which are associated with that social space. These are also internalized in early childhood, and perpetuated by reenactment of, or living in accordance with these codes of conduct, through the rest of an individual's life (Swartz, 2012:103).

According to Bourdieu, *Habitus*, therefore, is both a “structured structure, and a structuring structure” (Bourdieu, 1989). *Habitus*, is “structured” because it is highly

hierarchized by socio-economic inequalities, and it is “structuring”, as it perpetuates these inequalities through conscious or unconscious externalization of internalized codes of conduct. In other words, *Habitus* binds individuals and groups to their social, economic, political or religious identities through performance of ritualized norms thought to be indelible markers of these identities (Bourdieu 1989, 1995). According to Bourdieu, *Habitus* keeps perpetuating itself in a loop, unless a major shift or shock occurs from outside the habitus of a group that affects major shifts in these internalized perceptions.

A major criticism of Bourdieu’s *Habitus* is that it tends to rob individuals of their agency. It is generally perceived that the internalized notions in Bourdieu’s concept of *Habitus*, are so binding that innovations are impossible from within a group, which risks producing a static, eternal view of society. However, I argue that *Habitus* need not be so binding, and the external stimuli to transform it need not be a massive one. While minor innovations with no discernible long term effect on the *Habitus*, is always possible. These innovations, or changes in which people do things within a *Habitus* can contribute to slight modifications in the structure without altering the basic foundation of the *Habitus*. However, for large scale paradigm shifts which alters the fundamental characteristics that defines a specific *Habitus*, some sort of external stimuli in form of crises or opportunities or the combination of both is required. From this current ethnographic research, it is certain that these external stimuli can come in form of availability of new opportunities of knowledge creation, through modern education system, new avenues of expression, through modern electoral politics and also

experiences of small reversals. These new opportunities and experiences expands an individual's horizons, which leads to the transformation of *Habitus*.

### ***Field***

Bourdieu's concept of *Field* is indelibly linked with the concept of *Habitus*. *Field* constitutes the structures in a social setting within which *Habitus* operates. *Fields*, according to Bourdieu, are a set of arenas in which the actors compete to accumulate and monopolize different forms of capital; cultural, symbolic or economic (Swartz, 2012:117). The academic *Field* can be taken as a classic example, where different actors, such as academic institutions, established academics, young PhDs, other researchers and students compete with each other, or aspire to compete, for the production, consumption and dissemination of knowledge.

*Fields*, therefore, are different from institutions, as defined in a functionalist sense. Institutions are formed on the tacit understanding that there is a consensus about the purpose of these institutions. On the other hand, Bourdieu, conceives *Fields* as structured spaces, which are arenas of struggle between different actors. In other words, *Fields* can be defined as arenas in which different actors vie to accumulate valued resources (capital), which can be translated into power (Swartz, 2012:120).

Bourdieu identified three strategies that different actors participating in the struggle to acquire the resources adopt to achieve their interest. Those who hold dominant positions in the fields adopt strategies to *conserve* their position by negating the need for a struggle. New entrants in the struggle, and others not in a dominant position,

challenge the legitimacy of the conservative strategies of the dominant actors to *succeed* them in dominant positions. Finally, those actors who realize their weakness in gaining much out of this struggle for resources, adopt *subversive* strategies to propagate the futility of the struggle by openly underplaying the importance of the valued resource that the actors are vying to accumulate. However, crucially, *Fields* impose specific forms of struggle on the actors. By choosing to enter the struggle to attain dominance in accumulating the valued resource, the actors, both dominant and challengers show a tacit agreement that the field of struggle and the valued resource is worth pursuing. Even those adopting subversive strategies only underplay the importance of the resource and the futility of the struggle, but do not challenge its existence. Therefore, Bourdieu argues that the different sets of actors share a common interest in preserving a *Field* itself (Swartz, 2012:120-123).

#### **5.4.3 Caste system as intersection of Fields of Power**

The caste system in India has often been referred to as an institution. This view originates from the colonial understanding of Indian Hindu society, and later reinforced by Dumont's thesis that the Hindus are inherently hierarchical. This textually-informed myopic and inaccurate view of the Hindu society claims that there is a tacit consensus among different groups about their position in the caste structure, and that they know the importance of being pinned to their respective positions in the hierarchy for a smooth functioning of society. Caste, therefore, is an institution in a purely functionalist sense, because this tacit consensus about one's immutable place in social hierarchy is central for the eternal existence and functioning of the system.



I challenge this understanding of caste in this thesis. Based on ethnographic evidence from my fieldwork, I argue that caste, actually is a large *Field* of power which is a collection of different subfields of struggle for resources. Caste, in other words, is a collection of highly stratified arenas in which different hierarchically placed actors struggle to control political, social, cultural and economic resources (or capitals) which can be translated into power and articulated in the language of caste. All these different subfields of power struggle that constitute the caste system, are intertwined with each other, with the actors often struggling for control over more than one valued resource.

If the caste system is perceived as a collection of subfields of power, then Foucault's concept of Power can be employed to deepen the understanding of its inner dynamics. The dominant groups in these different fields, which are mostly constituted of Brahmins, landed elites, or rich commercial classes, employ different techniques to maintain a status quo in the structure, and negate the conflicts rising out of those challenging their hold on power and resources. These techniques have to be constantly put to action to contain the actors who challenge the authority and legitimacy of those in positions of power. This is done through semiotics, myths, production and imposition of knowledge, and definition and redefinition of identities. The actors, who are involved in this struggle over important resources in each of these subfields, and ultimately, dominance in the caste hierarchy, are not challenging the legitimacy and existence of the caste structure. Even the recent anti-caste movements led by the Dalits, who tend to challenge the caste system, are actually re-entrenching it by forming a caste-like group themselves. Although they are challenging the supremacy of the Brahmin-Kshatriya groups, their campaigns overtly rely on the traditional language historically employed by other actors

who had earlier challenged the dominance of these groups. The purpose of these earlier struggles were merely to challenge the nature of hierarchy and access to resources within the system, and not the system itself.

## 5.5 Conclusion

In this chapter I introduced three theoretical concepts which form the foundation for the analysis of the ethnoarchaeological data in this thesis. First, I have introduced different theories on specialized craft production proposed by Leeuw, Peacock and Costin respectively. I mentioned that Costin's theory will be used to analyze and understand the craft specialization among the iron-smelters of northern Telangana (Chapter 7). Secondly, I provided a brief overview of how **the Indian caste system** has been studied by historians and anthropologists since the 1960s. The mechanism behind the emergence of modern Hindu caste identities are also explained through the works of Bailey, Dirks and Inden. In the final section I have discussed Foucault's theory of power and Bourdieu's concepts of *Field* and *Habitus*. I argued that these apparently contradictory theoretical concepts can be used together to understand the formation of a homogenous *Viswabrahmin* caste identity among different iron-working groups of northern Telangana. This is pursued in Chapters 6, 9 and 10.

## CHAPTER 6

# FIVE LIVES: IRON-WORKING GROUP IDENTITIES IN NORTHERN TELANGANA

### 6.1 Introduction

Desaradi Narasaiah: *I am from Kammari jati.*

TN: *But you said you all are Mudda Kammaris (smelters).*

DN: *We WERE Mudda Kammaris. Now we don't do that work so we only do kammar-pani (blacksmithing).*

TN: *What caste are you then?*

DN: *Viswabrahmin. We are BCB (Backward Classes Category B)—Kammari, Kanchari, Ausala, Wadla and stone workers.*

The above conversation with Desaradi Narasaiah, the son of an iron-smelter-turned-village blacksmith, represents the layers of identity of the iron-workers of northern Telangana. I will examine these layers in further detail through the lives of five iron-workers, each a specialist manufacturer of specific implements. This chapter will take an emic approach to allow these individuals to discuss various layers of their identity through their lived experience and specialist craft practitioners. These five lives will provide the principal entry-point to interrogate a complex set of relationships between technology, craft, people and space in the context of traditional iron-working in northern Telangana.

During three seasons of fieldwork in northern Telangana, I have interacted with a large number of iron-workers and their clients. Among these interactions, 63 are reproduced in Appendix 1 as formal interviews, while many other short and casual interactions remain in the fieldnote form. These five individuals were selected from this substantial ethnographic dataset for two reasons. First and foremost, while it was possible to gather fragments of lived experiences of other iron-workers, these five individuals provided a sustained insight into their lived experiences, including their misfortunes. Secondly, after piecing together the field data it was evident that these five lives closely represented and embodied the lived experiences that other members of the community had encountered.

## 6.2 The *Viswabrahmin* identity

Consistent with most of South India (Ramaswamy, 2004, Brouwer, 1995a, 1995b, Srinivasan, 1993), the iron-working communities in northern Telangana are grouped under the *Viswabrahmin*/*Viswakarma* caste, along with four other traditional groups of craft specialists—the carpenter, gold- and silversmith, bronze-smith and the sculptor. Superficially the *Viswabrahmin* caste identity appears to be homogenous and universally accepted throughout peninsular India. However, the present research revealed that underneath this apparent homogeneity exist highly hierarchized groups of craft specialists, locked in a power struggle with other for symbolic dominance within the *Viswakarma*/*Viswabrahmin* fold. I argue that the *Viswabrahmin* caste identity in northern Telangana, is, therefore, a loose coalition of various horizontally placed groups of craft specialists, who came together to secure their own socio-economic interests when

faced with a steady decline in demand for their skills. Subscription to a common, and as we will see, imported, creation myth, a common demi-god, and hatred towards Brahminical hegemony ensures a working unity among the various groups of specialists within the *Viswabrahmin* fold, by minimizing conflicts of interest. The socio-economic and political contexts in which this homogenization process took place, will be taken up in Chapters 9 and 10. In order to peel through the layers of this acquired *Viswabrahmin* identity through the lives of five artisans below, it is important to understand the *Viswabrahmin* identity narrative and the semiotic techniques through which such homogeneity is ensured.

### 6.2.1 The *Viswabrahmin* origin narrative

The apparent unity of the five craft communities within the *Viswabrahmin* fold is reinforced by a common origin myth which binds these communities in a kinship relationship. This origin myth is universally accepted among the *Viswabrahmins* of South India and serves as the unifying force of the community in the local, regional and trans-regional levels. Although I found minor variations in the origin myth between different interlocutors, the common structure of the narrative is identical to the one described below, narrated to me by the Krishnamurthy, a goldsmith, and the incumbent chief priest of the *Viswabrahmin* temple at Katkanapally in Karimnagar district.

*“God Viswakarma, or Viswabrahmana [Fig. 6.1] is the creator of the universe. It is from him that all other Gods emerged. First Lord Viswakarma created a divine consort, a female principle, who we worship as Gayathri Maata [mother; Fig. 6.1]. Gayathri Maata bore Lord Viswakarma five sons, or five Great Brahma Rishis*



*Figure 6.1 God Viswakarma with his Divine Consort Gayathri Maata (Source: Brahmanagar Matham, Mancheria)*

*[saints]. Each Brahma Rishi was an expert in one of the five Great Arts [iron-working, wood-working, bronze-working, sculpting and, gold and silver working], and well versed in one of the 5 Vedas. These five sons also had alternative names, the names by which they are recognized by all Hindus today.*

*We, the Viswabrahmins, worship them in their original names. They are:*

<b>Name</b>	<b>Alternate Name</b>	<b>Vedas</b>	<b>Craft</b>
<i>Mano Brahma</i>	Shiva/Rudra	Rig Veda	Iron-working
<i>Maya Brahma</i>	Vishnu	Sama Veda	Wood-working
<i>Twashtha Brahma</i>	Brahma	Yajur Veda	Copper/Bronze working
<i>Shilpi Brahma</i>	Indra	Atharva Veda	Sculpting
<i>Vishwajnya Brahma</i>	Surya (sun)	Pranava Veda <sup>5</sup>	Gold and Silver working

*Since these five Brahma Rishis emerged from the divine union of Lord Viswakarma and Gayathri Maata, we consider them as integral parts of their body. This is why we represent Lord Viswakarma and Gayathri Maata with five heads of different colours [Fig. 6.1]. The Brahma Rishis created*

<sup>5</sup> Among the *Viswabrahmins* in the study area, especially the goldsmiths and others who are well versed with the theology, there is a belief that Pranava Veda was the oldest and the foremost of the Vedas. The knowledge of this Veda is now believed to be lost, but it is believed to contain knowledge about the mysteries of creation.



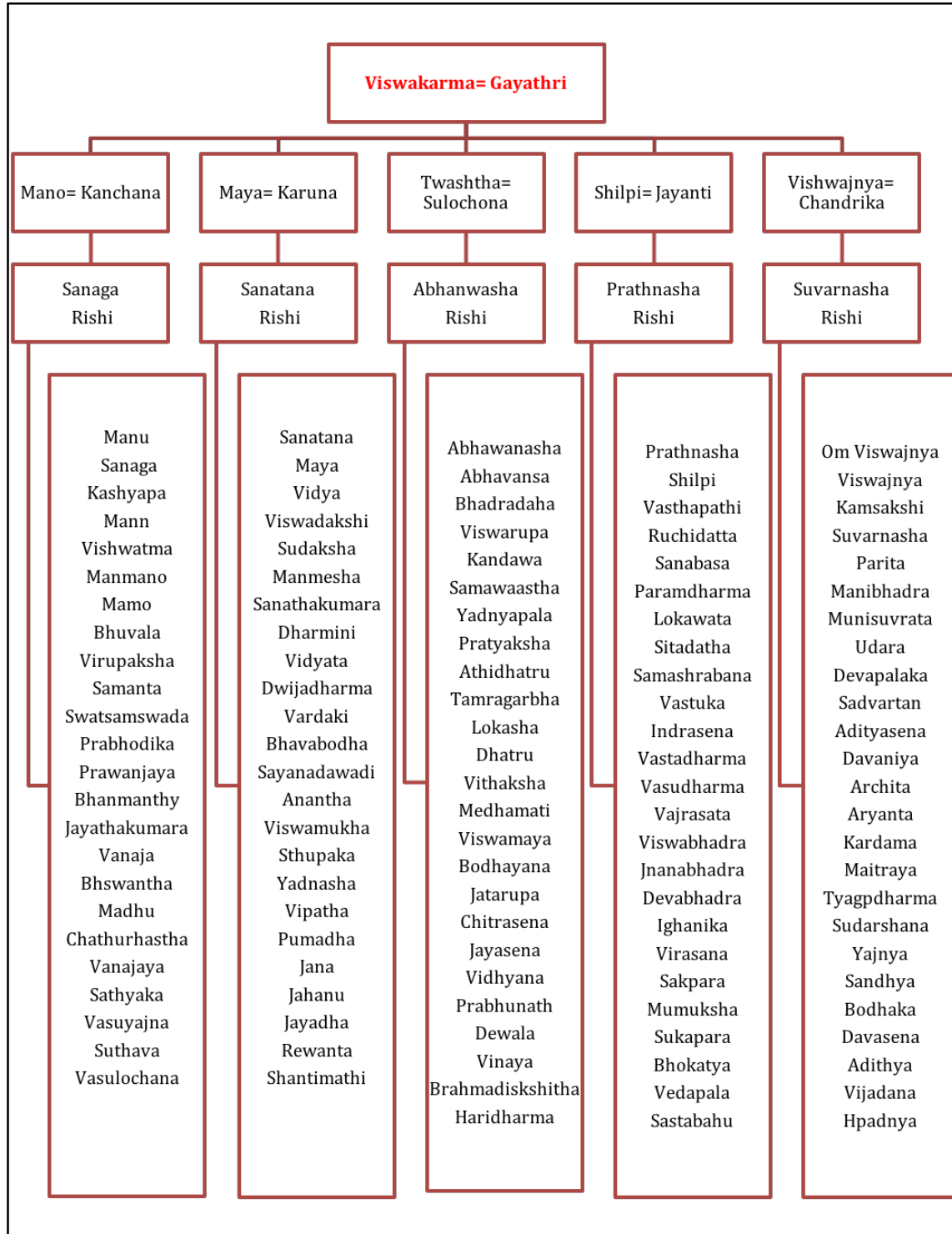


Figure 6.2 Genealogy of the Viswabrahmins of South India (prepared by the author based on a format in telugu supplied by Viswabrahmin Sangham of Jagitil)



*everything in the world you see today combining their knowledge of the five crafts and the five Vedas.*

*Now the five Brahma Rishis each had one divine consort, and each divine union gave birth to a son. The Brahma Rishis passed their knowledge about the craft [they specialized in] and the Vedas [they mastered] to their sons, who continued with the creation process initiated by their grandfather Lord Viswakarma. The five sons of Brahma Rishis are Gothrakara, or the progenitors of the 5 Gothra [lineages] of the Viswabrahmins. Each Gothrakara had 25 sons or Upagothrakara [sub-lineages]. Therefore, in total we the Viswabrahmins are divided into 125 upagothra. Every Viswabrahmin in the world can trace their origins back to the Upagothrakar and then, therefore, to the Gothrakara. Since each Gothrakara excelled in one of the five great crafts, their sons, the Upagothrakara took the same profession up and it, therefore got perpetuated through generations.”*

*“So if you know that Upagothra of a person, you can basically match it up with this list and know which craft his family had traditionally specialized in?”—I asked.*

*“Precisely, that is the point. But it will not be correct now. Everyone is taking up different crafts. A kammari is learning the work of an ausala for money. So now you cannot say anything based on the upagothra.”*

*“What about marriage? Are there any restrictions in marrying between certain gothra?”—I asked.*

*“The only restriction is that one should be careful not to marry within the same upagothra. That will essentially mean that you are marrying your sibling, which is not right.”*

*“But is it okay if two people from the same gothra, but different upagothra marry each other? Or, one has to always marry outside the gothra?”*

*“No no. It is okay to marry someone within the same gothra, but with a different upagothra. This is very common. In Telanagana, we follow Menarikam [first cousin marriage]. That is the traditional way of marrying. So it is a common practice to marry between the upagothra within the same gothra.”*

*“And is it okay or common to marry outside the gothra?”—I asked*

*“I told you, the five Brahma Rishis were brothers. The Gothrakara were cousins. So marriage between gothra can be a type of Menarikam. But everyone first searches within their gothra and then they search outside. But now everything is becoming mixed. People have also started marrying outside our caste.”*

### **6.2.2 Understanding the myth**

The above narrative of *Viswabrahmin* origin is universally accepted by the craft communities in South India today. However, ethnographic and archival evidence

indicate that the appearance of a standardized *Viswabrahmin* caste identity is relatively recent in the study area.

***Context: the emergence of a collective Viswabrahmin identity***

The term *Viswabrahmin* as a caste-identity appears for the first time in the Hyderabad State Census of 1921, where only 36 individuals had identified themselves as the members of the above caste (Rahamatullah, 1923). However, in 1931 census, the number of individuals identifying themselves as *Viswabrahmins* spiked to 26,742 in the Hyderabad State. Hassan's (1920:544) study on the castes and tribes of the Hyderabad State (comprising of mod. Telangana, northern Karnataka and south-western Maharashtra) mention that these five craft communities were collectively known by different names in different regions of Hyderabad state. However, it is unclear if they ever represented a homogenous caste identity. Hassan's study also suggests that by the early 20<sup>th</sup> century, the communities were increasingly adopting a new common identity narrative and the identity term of *Viswabrahmins*, glossing over these regional differences.

A similar trend can be identified in the colonial censuses and anthropological surveys based on the "Castes and Tribes" model for the rest of peninsular India. These studies indicate the existence of a collective identity of the five craft communities in 19<sup>th</sup> century South India. However, this collective identity was by no means universally accepted and performed. Like Hyderabad State, the terms used to index this collective identity varied across various regions in South India—*Panchala* (lit. "The Five") in Canara (mod. southern Karnataka), *Kamsala* in the Madras province (incl. modern day Tamil Nadu

and Seemandhra) and Travancore State (mod. southern Kerala), *Karamala* in northern and central Andhra and parts of Telangana (Thurston and Rangachari, 1975[1907]:Vol IV-142-147). These regionally divided groups also did not subscribe to a commonly accepted ritual behavior. While the *Kamsala* of Madras province used to wear the sacred thread, took to vegetarianism and openly challenged the sacerdotal authority of the Brahmins, this practice was by no means standardized in other areas (Thurston and Rangachari, 1975[1907]:144-147).

It is the colonial censuses that provide us a better entry point in understanding the beginnings of the emergence of a standardized *Viswabrahmin* identity in South India. The first conscious attempt by the members of these five communities to identify themselves as a single homogenous caste group in South India, was made during the census enumeration for 1891. Although the terms *Viswabrahmin* or *Viswakarma* does not appear in the colonial censuses until 1921, the Census Commissioner's report of 1891 is clearly indicative of a growing tendency among the five craft communities to identify themselves with a single caste term:

Owing to the majority of the members of all five groups being returned in Madras under the general title of " the five arts, " the number there has been distributed according to that of the portion of each class which was separately returned, so that the division is partly arbitrary.

(Baines, 1893:196)

This common identity term was *Panchakulasi* or “The Five Clans”. A close reading of Baines’ general report on the 1891 census suggests that this new identity term had stumped the census enumerators in the Madras Presidency (present day Tamil Nadu and Seemandhra). Baines states that it was exceedingly difficult for the enumerators to distinguish between the castes of blacksmiths, goldsmiths, bronze-smiths and carpenters in Madras province because they usually identified themselves as *Panchakulasi*. It was a commonly held belief among the colonial administrators and the census enumerators that each single caste would be endogamous, irrespective of the sub-divisions within that caste. Despite claiming a common caste origin, however, these five artisan groups largely prohibited marriage with each other (Baines, 1893:196-198). It is with this background of a conscious creation of a collective identity that the *Viswabrahmin* origin myth must be analysed.

### ***Analysing the origin myth***

The objective of the *Viswabrahmin* caste narrative is to unify the five artisan groups under a single identity term, and the creation myth provides the semiotic means to attain this unity. This is done in several ways. Most obviously, references to the God Viswakarma are collated from a constellation of Vedic and Puranic texts. References to a Vedic origin are essential to legitimate the existence of the *Viswabrahmin* community within the Hindu religious fold.

However, the construction of a common Vedic origin is not enough to lure the craft communities to a common identity. In order to create a homogenous imagined community, it is essential to manufacture a sense of pride and superiority invested in

that community. In other words, it is not enough to suggest that a common *Viswabrahmin* identity is endorsed by the Vedas. This *Viswabrahmin* identity must also feel empowering for those who imagine themselves to be a part of this common heritage. The creation myth achieves this in two ways. First, *Viswakarma* is posed as the creator of the universe. Second, the five sons of Viswakarma (the first five craftsmen) are equated with the five major Hindu deities: Shiva, Vishnu, Brahma, Indra and Surya. Placed as the progenitor of the universe and the “Creator” deities of Hinduism, Viswakarma and his descendants, the *Viswabrahmins*, are placed higher than any other caste in the Hindu fold, even higher and purer than the Brahmins. The artisan communities of peninsular India, especially in Tamil Nadu, had historically opposed the sacerdotal superiority of the Brahmins by wearing the sacred thread, a commonly accepted symbol of ritual purity. The *Viswabrahmin* origin myth provided further legitimacy to this claim.

Finally, the internal divisions between the five craft communities were superseded by promoting the equality of the “five brothers,” the sons of Viswakarma. It is believed that these five sons of Viswakarma emerged out of the divine union between Viswakarma and Gayathri at the same moment, and hence are equals.

### **6.3 *Viswabrahmin* identity in northern Telangana**

On the surface, the *Viswabrahmin* caste identity in northern Telangana seems well-entrenched and universally accepted by both the members of the artisan communities and others. During our interactions, the *Viswabrahmin* temple priests repeatedly emphasized the egalitarian nature of the *Viswabrahmin* community. Time and again

they pointed out that, as progeny of Lord Viswakarma, members of these five groups of artisans stand together without any hierarchy within the community.

In terms of performing the *Viswabrahmin* identity through ritual behaviours, a high level of adherence among the members of these five groups was noticed. The male members of all five craft groups wear the sacred thread, a symbol of ritual purity and a challenge towards the sacerdotal authority of the Brahmins. The members also worship the cult of Veera Brahmendra Swamy, a 17<sup>th</sup> century saint who is considered to be an embodiment of the God Viswakarma.

### 6.3.1 Heterogeneity under the homogeneity

Underneath this fabric of equality and unity, however, the *Viswabrahmin* caste in northern Telangana is highly hierarchized. The artisan groups within the *Viswabrahmin* fold are divided into two competing clusters—the *Kammari* and *Wadla* on one hand, and the *Ausala* and *Kanchari* on the other. During my fieldwork, I did not meet anyone from the *Shilpi* community, and a majority of my interlocutors were unaware of their existence. It is therefore safe to assume that the *Shilpi* have not been effectively integrated into the *Viswabrahmin* caste, at least in my study area.

During my interactions with members of the *Kammari* community, I noticed a conscious attempt to claim superiority among the *Viswabrahmin* caste. This was done through a reinterpretation of the origin myth (6.2.1) from the *Kammari* perspective. This was occasionally followed by the narration of a *Kammari* origin myth akin to that of the “Iron

Fortress” which was recorded by Brouwer among the blacksmiths of northern and central Karnataka (1995a). Both are described below.

***Kammari interpretation of the Viswabrahmin origin myth***

*“Of course we [the Kammari] are elders. Other four cannot work if we do not make their tools. The farmers cannot produce crops if we do not make the ploughshare.”*

Immadi Rajanna, an aged blacksmith of Habsipur [FN].

In our first interactions, many of the *Kammari* interlocutors stated the ideological understanding that all the five craft communities were equal, like brothers. However, as our acquaintance grew, many of them made a slight, but significant alteration in the origin myth. This altered narrative suggested that Mano (*Kammari*) (fig 6.2) was the firstborn of the union between Viswakarma and Gayathri Maata. It was only after Mano was given the knowledge of iron-working by his divine father that he could prepare the tools for the *wadla* to cut down the trees and work with wood. The Maya (*wadla*), was then given the skill of carpentry to make the plough for the ploughshare prepared by Mano. Finally, Mano and Maya together could combine their skills to manufacture all the tools in the world, including those needed by their brothers Twashtha, Shilpi and Vishwajnya, the first bronze-smith, sculptor and gold-/silversmith. All *kammari*, born from the progeny of Mano, the first born of Viswakarma, should therefore be considered the senior craftsmen among the five.



### ***Ritual purity of the Kammari***

The members of the *Kanchari* and *Ausala* communities tend to challenge the *Kammari* claim to superiority and prestige within the *Viswabrahmin* caste by pointing out that the *Kammari*'s consumption of meat and alcohol, which compromise their ritual purity. A majority of the priests and *Viswabrahmin* ritual specialists come from the *Kanchari* and *Ausala* communities, where their ritual purity and access to prestige and power within the caste is reinforced by a strictly vegetarian diet and abstinence from alcohol. The *Kammari* counter this claim by narrating a story in which they were the victims of some deceitful Brahmins.

The story takes place in the 12<sup>th</sup> century, during the Chalukya period in coastal Andhra. The *Kammari* were living as good Brahmins who were well versed in all the five Vedas. Their skill as workers of iron was also thriving. Their material affluence and intellectual astuteness had incurred the jealousy of the *Go-Brahmins* (cow worshipping *Brahmins*) of the region. To get rid of the *Kammari*, the *Go-Brahmins* invited them to a feast where they were fed non-vegetarian food under the guise of a vegetarian meal. They were also served alcohol instead of water and finally, when they were drunk, they seduced the *Kammari* with beautiful prostitutes. The God Viswakarma was extremely unhappy with the conduct of the *Kammari*, and cursed them by taking away all of their wisdom and wealth. When the *Kammari* begged for forgiveness from Viswakarma, they were instructed to go to the Kakatiya kingdom (in Telangana) and forge the tools required by the farmers and other craftsmen in recompense for their crime. This was how the once

illustrious *Brahmins* became the poor and lowly *Kammari* of today, addicted to alcohol and a non-vegetarian diet<sup>6</sup>.

### ***Location in space and in the economic network***

This ideological tension between the *Kammari* and the *Kanchari* and *Ausala* communities is reinforced by two interconnected factors—the location of these communities on the physical space of northern Telangana; and their involvement in discrete economic networks.

The farmers of rural Telangana are the primary clients of the *Kammari* and the *Wadla* communities. The blacksmiths and carpenters forge and repair agricultural tools for the farmers in each village. After each harvest, the farmers pay for these services with a traditionally determined amount of grain. The *Kammari* and *Wadla* generally work within this prestation arrangement and despise the cash economy. This traditional prestation arrangement ensures the presence of *Kammari* and *Wadla* families in almost every village of the study area, well distributed in the landscape. Although the *Kammari* and *Wadla* were considered important members of the village community in northern Telangana with significant access to power and agrarian resources, the recent introduction of tractors and other agricultural machines has caused massive displacement in the community, rendering a majority of them poor and out of work. On the other hand, the *Ausala* and the *Kanchari* families work in the cash economy, producing ornaments, idols and ritual utensils for a comparatively affluent clientele.

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<sup>6</sup> A standardized version created by the author by collating various versions of this story heard during the fieldwork.

Growing urbanization in the study area provided new opportunities for the gold-/silversmiths and bronze-smiths. Their traditional clients, the rural affluent families have moved to the urban areas. Urban economy also meant the presence of an financial strong urban middle class, capable of affording the services of these craft specialists. A majority of the *Ausala* and *Kanchari* families therefore, presently reside in the urban areas of northern Telangana. Only a few families remain in some big villages, where there is a possibility to serve affluent farmer families. These new opportunities have ultimately strengthened the financial condition of these communities, enabling them to fund the establishment of *Viswabrahmin* temples in the area, take up priestly duties, and project themselves as the prime philanthropists and leaders of the *Viswabrahmin* community.

### ***Separate caste associations***

*“There are 55 Ausala families.”*—one of the committee members replied.

*“They do not come to the temple? Are they not the members of the same Sangham?”*—I asked.

*“No, they have their separate Sangham. They are not interested in the temple and they do not contribute towards the development of our temple. They are different than us. They did not donate any money when we established this temple 2 year back. Anyone can become a goldsmith, you see. But not anyone can become a blacksmith and a carpenter.”*—the president explained.

[Members of the *Mano-Maya Viswabrahmin Sangam*, Choppadandi  
Appendix 1:51]

*“It is mainly us [blacksmiths] and the carpenters who come to the sangam. There are two Ausala houses [families], who also come very rarely. They do not give any money either. The Ausala and Kanchari do not care about us”—Rajaiah clarified.*

[Polasa Rajiah of Mangela, Appendix 1:43]

The rift between these two clusters becomes more apparent when the composition of rural *Viswabrahmin Sangams* (caste associations) are observed. None of the *Sangams* I studied during my fieldwork included members of the *Ausala* or *Kanchari* communities. The *Sangams* I studied, were all constituted of the members of the *Kammari* and *Wadla* community of a village or block (collection of villages). In the villages or blocks where there were *Ausala* or *Kanchari* families, it was observed that they normally had their own *Sangam* and did not associate with the *Kammari* and *Wadla*. These Caste associations serve as primary forums to reinforce and promote group identities and interests. Therefore, it can be argued that the struggle for prestige and access to dominance within the *Viswabrahmin* fold is further entrenched by the act of these groups coming together in discrete *Sangams*.

### 6.3.2 *Kammari* identity narrative

Looking even more closely, there are further divisions within the *Kammari* community as well.

#### ***Kammari***

*Kammari* is a generic term for blacksmith in Telugu and many other Indian languages. However, to the Telangana blacksmiths, the term *Kammari* has a far deeper social meaning attached to it. As a stand-alone term, *Kammari* connotes the families of rural blacksmiths who traditionally forged agricultural implements for the peasant families of their village. The farmer families that they served for generations pay them a share of their harvest, the amount of which is fixed by age-old cultural conventions for each village. It is crucial for the *Kammari* to function efficiently in this traditional prestation system of exchange. The *Kammari* are required to abstain from producing for the village or urban markets. Cash transactions are perceived as unclean and are avoided when possible.

#### ***Mudda Kammari***

Various terms are prefixed with *Kammari* to distinguish between groups of iron-workers involved in other kinds of specialized production and economic networks. Hence, the iron-smelters are known as *Mudda Kammari*. The prefix *Mudda* literally means lump, and possibly indicated the iron-bloom obtained after smelting the iron ore. Their work is perceived as unclean by the *Kammari*, since they worked in the heat to smelt iron from “dirt” and sold the bloom for money to the *Sahukar* or middle-men. A similar account

coming from north Karnataka (then in Hyderabad State) can be identified in Thurston and Rangachari's *Castes and Tribes of Southern India* (1975[1907]:Vol III). In this ethnographic encyclopedia of South Indian communities Thurston and Rangachari recorded a group of iron-smelters in the Bellary region of northern Karnataka, who were known as *Baita Kammari*. *Baita* literally means “outsider”, and in this account Thurston and Rangachari noted:

*“The term Baita Kammara, meaning outside blacksmiths, is applied to Kamsala [the group of five crafts] blacksmiths who occupy a lowly position and work in the open air outside the village.*

(Thurston and Rangachari, 1975[1907]:III-141)

During my fieldwork I found the distribution of the *Mudda Kammari* families, very restricted in the landscape of the study area. The concentration of these families closely correspond with the distribution of the archaeometallurgical record of iron-smelting in northern Karimnagar and southern Adilabad (Fig 6.3).

As is clear from the above image (Fig 6.3), the *Mudda Kammari* families are more concentrated in southern Adilabad, and comparatively sparse in northern Karimnagar. This can be explained by the fact that many *Mudda Kammari* families had migrated different parts of the region to southern Adilabad in the last days of the pre-industrial iron-smelting in the region due to better accessibility to ore and charcoal resources (see discussion in 7.4.1).



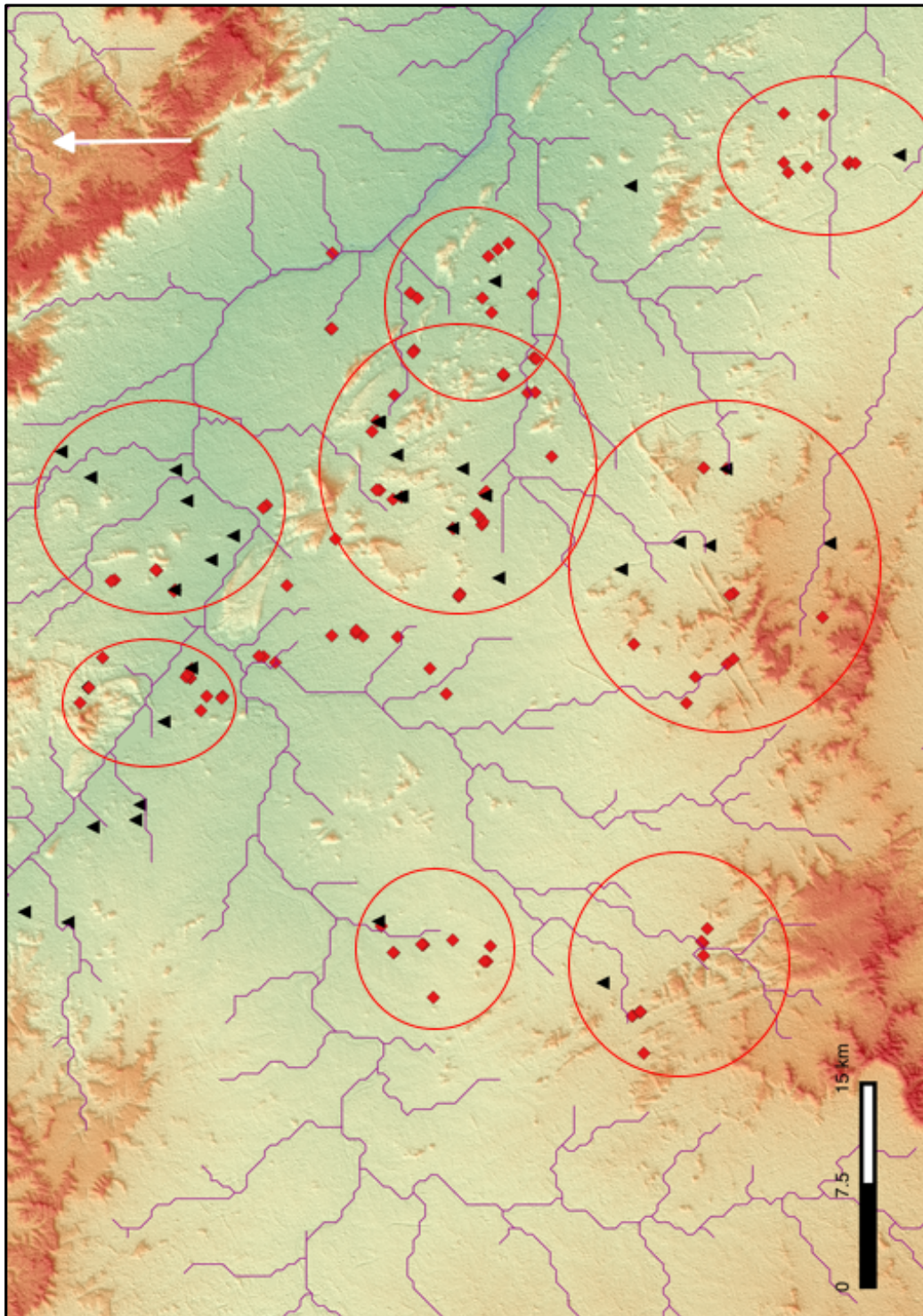
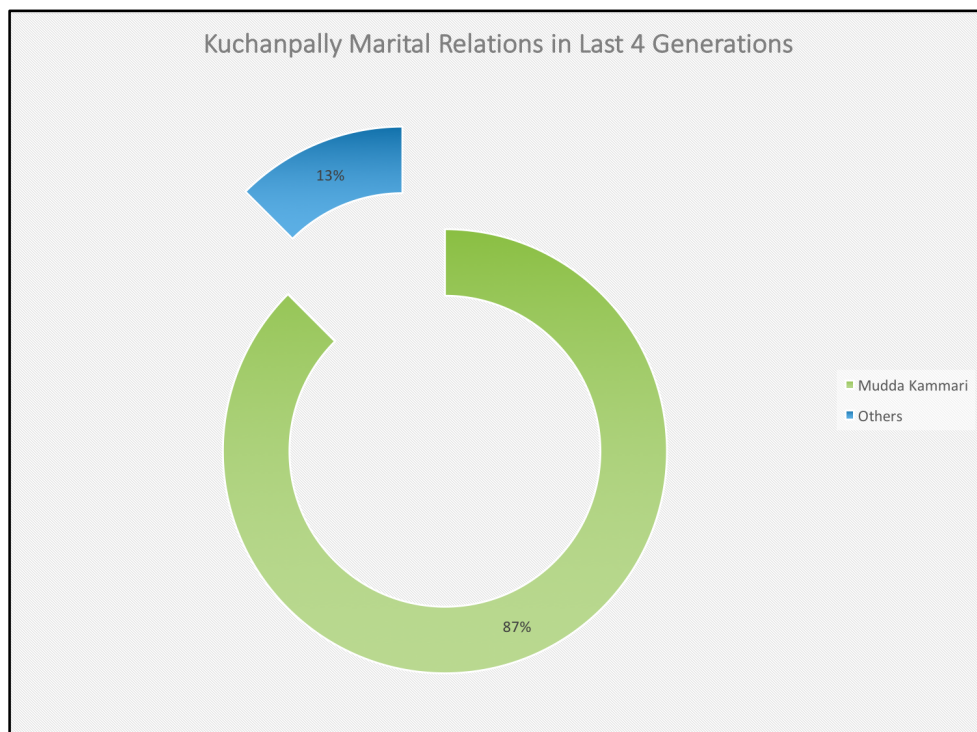
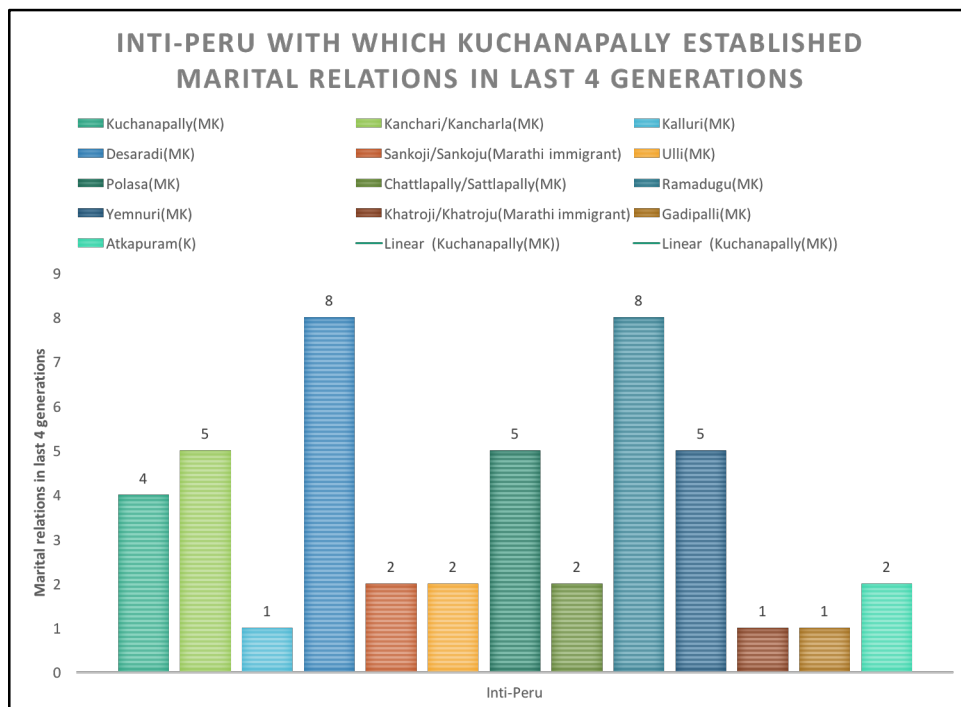


Figure 6.3 Map of the study area showing the location of the Mudda Kammari families in proximity to the archaeometallurgical remains of iron-smelting. The black triangles are Mudda Kammari families and the red diamond shaped marks are smelting sites (Map work by T. Neogi)



*Figure 6.4 and 6.5 Charts showing the marital relations of all Kuchanapally families in the last 4 generations. They are a major Mudda Kammari family in the area. (Charts prepared by T. Neogi)*



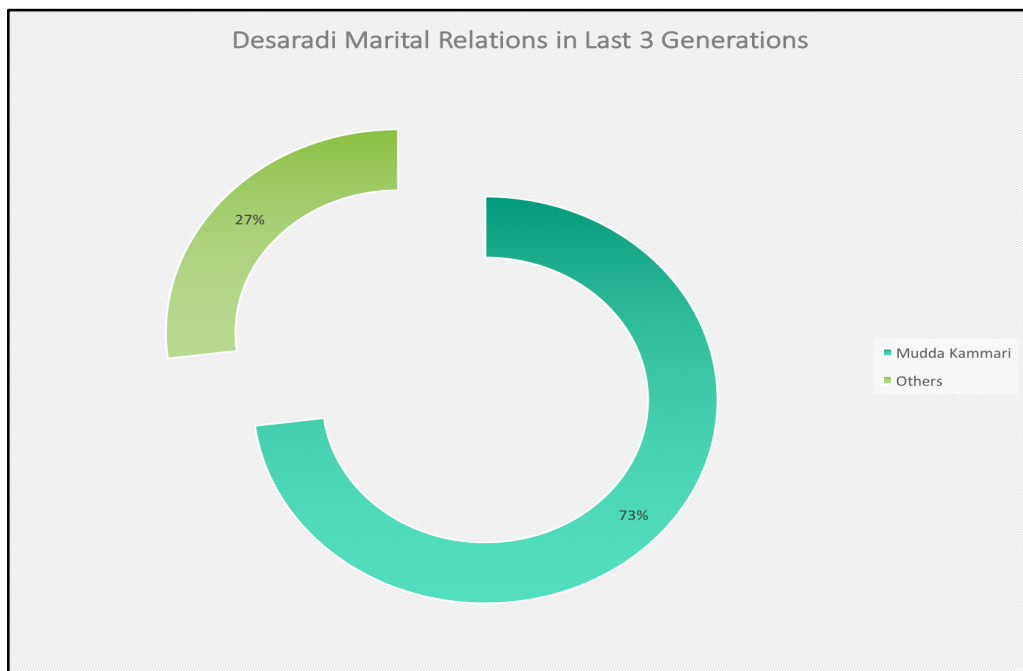
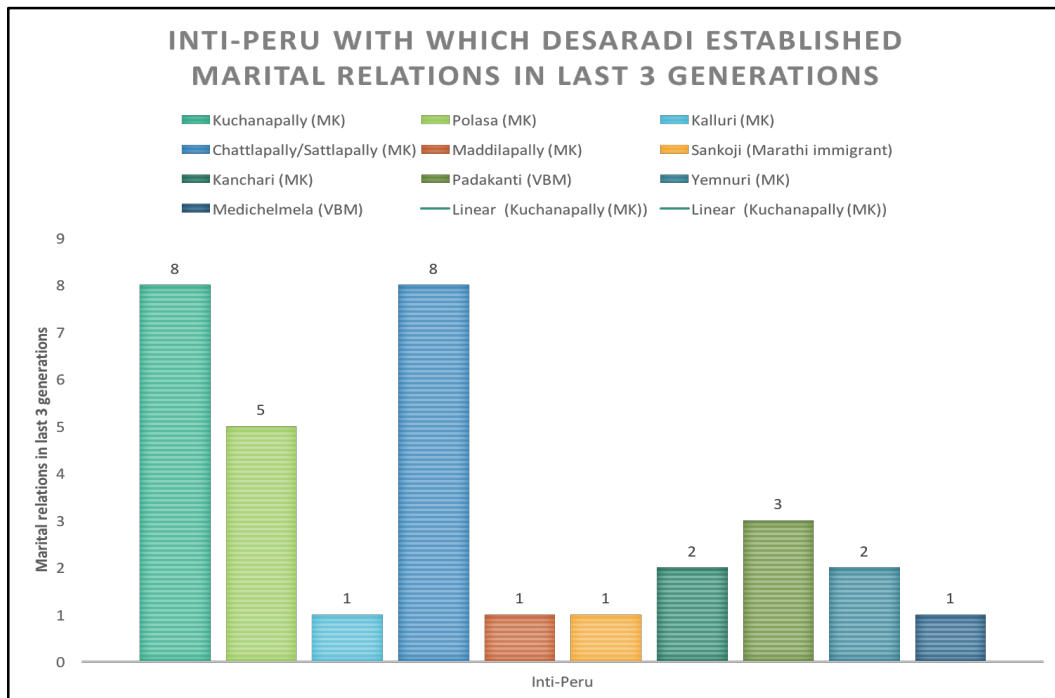


Figure 6.6 and 6.7 Charts showing the marital relations of all Desaradi (inti-peru) families in the last 3 generations. They are Mudda Kammari family in the area (Chart prepared by T. Neogi)

Apart from the proximity to the archaeological evidence of iron-smelting, the *Mudda Kammari* communities' association with the craft and their distinct identity as a community separate from the *Kammari* can be traced by studying their genealogies. During my fieldwork, I collected genealogical information from 15 major *Mudda Kammari* families in the study area. What immediately leaps out after analyzing the collated information is that a majority of the marriages took place within the *Mudda Kammari* families (E.g. Fig 6.4 & 6.5; 6.6 & 6.7). The prevalence of the practice of endogamy among the *Mudda Kammari* becomes extremely apparent after inputting the collected genealogical data on to the Family Tree 3 software. The genealogy tree that runs over several pages, suggest that each and every individual in the last 4 generations among these 15 families, were related to one another through kinship. Marriages outside these 15 family groups are becoming more common in the present generation as the *Mudda Kammari* lost their distinct identity owing to the decline of iron-smelting.

### ***Shisha Kammari***

The *Shisha Kammari* are a group of itinerant tribal blacksmiths who forge implements on a piecework basis and work within the primarily urban cash economy. They are abhorred by the *Kammari* for this reason. The *Shisha Kammari* are not considered to be a part of the *Viswabrahmin* community.

### ***Other iron-working groups***

The Colonial census data from the early 20th century suggests that there were other groups of specialist iron-workers who were closely involved with the cash-market economy—very distinct from the domain of the *Kammari*. Apart from the *Kammaris*, who are recorded as “plough and other agricultural implements maker”, the Hyderabad State Census of 1901 records other specialist groups of blacksmiths including knife makers, knife grinders, gunsmiths, sword-smiths and iron hardware manufacturers (Khan, 1903). While it was possible to identify individual specialists like Immadi Lachhanna (a former sword-smith) and Kasarla Narasaiah (a former scissors-smith) during fieldwork, I could not retrieve their identity terms. These terms, which might well have existed, has vanished with the decline in these specialized branches of blacksmithing. Use of the term *Kammari* is therefore loaded with meanings; social, cultural and economic. Different terms prefixed with *Kammari* identify a specialized branch of the craft and the nature of the economic network in which the specialist operates. The *Kammari* use these terms to create categories and to define hierarchical power-relations among different iron-working groups.

### **6.4 Five Lives**

The ethnographic data for this chapter was collected during a series of lively interactions with blacksmiths and smelters during three seasons of fieldwork in northern Telangana. Following University of Exeter’s ethical code for conducting ethnographic research, oral permission was sought from the interlocutors for using their names and their life stories in the present work. Most of these interactions were compiled as

interview transcripts and are presented in Appendix 1. However, a number of short, informal discussions and conversations are not included in the Appendix. The methodological strategies involved in gathering this data are discussed in Chapter 4 (4.3). Throughout the thesis the interview transcripts are indicated in bold, e.g. **(26)**.

#### 6.4.1 Kuchanapally Bakkanna of Rangapeta, *Mudda Kammari*

Kuchanapally Bakkanna (Fig. 6.8) is a 90-year-old *Mudda Kammari*. His predecessors were iron-smelters like him. Presently he is one of the **oldest** smelters alive in the area. When I met him at his thatched hut in a small village near Dasturabad, he was recovering from a bad fall that had broken his arm. Bakkanna was resting on a rope-bed after lunch **(26)**. He looked thin and frail and had lost sight in one eye, nonetheless Bakkanna was glad to talk about his life and share his knowledge of smelting. He said that even his son did not ever ask him about smelting. He was happy to share his knowledge, but we had to be slow and patient with him since his memory has blurred over the years and he had slowed down with age. During the course of fieldwork, I met Bakkanna three times, during which we discussed his life. Sadly, Bakkanna passed away in February 2015. What follows is a synthesis of our conversations.

Bakkanna's family came from the village of Khanapur, which presently is a booming town in Adilabad district. His great grandfather, Sankhagaru, settled in Dasturabad with his grandfather Kondiah. Dasturabad is a large village in Kadem Mandal of Adilabad district. Iron ore rich hills and forests, supporting the highest concentration of iron-smelting families in the region, surround the village. Dasturabad still houses more than 50 *Mudda Kammari* families.

Kuchanapally Bakkanna was born in Dasturabad. Being born into a smelter family, Bakkanna started helping his father and others in smelting from his early teens. Later, in the last days of iron-smelting in Dasturabad, he had become one of the master smelters. There were two active furnaces in Dasturabad, Bakkanna recalled. A team of 8 smelters worked together at each furnace.



*Figure 6.8 Kuchanapally Bakkanna (taken by the author)*

They collected iron rich black sand, locally called *wuske* from the streambeds after fresh monsoon rains. Charcoal was prepared from the woods of *Sandra-chettu* (wood from the *Acacia Catechu*), which were collected from the nearby forests. Iron was smelted

within the village. The *muddas* were then divided among the smelters and sold to the *Sahukar* (middlemen), who resold them in the urban markets of Jagtial, Nirmal and Hyderabad. After each smelt, Bakkanna and other smelters forged agricultural implements for farmers of Dasturabad.

*“There was not much to smelt those days. Our grandfathers could live by making iron, but during my time we did not earn enough from it. We had to do other work. No one needed our skill”,* Bakkanna lamented.

Iron-smelting stopped after the independence, with large scale Indian industrialized iron and steel production and even stricter bans imposed on exploitation of forest resources by the government. This is when the *Mudda Kammaris* started leaving Dasturabad in search of alternative livelihood.

*“There were many smelters, but no work in the village, so people had to leave”,* Bakkanna explained.

In early 1970s Bakkanna was invited by a group of farmers in Rangapeta to serve as the village *Kammari*. The earlier village *Kammari* had died leaving no heir to provide for the client farmer families. Bakkanna and his family were given a piece of land on which he built a house and set up his workshop. He inherited all the client farmers from the previous *Kammari*. I asked him if this was a big transition from being a smelter to a full-time village blacksmith. Bakkanna explained that as *Mudda Kammaris*, they had to work as blacksmiths part-time, but that was not enough income for them to sustain. Also people looked down-upon the *Mudda Kammari*, as they thought that they were

labourers toiling under the sun with dirt. This was a welcome transition that provided him a fixed source of income and a higher level of prestige in rural society.

Bakkanna said that blacksmithing is not in demand anymore due to mechanization of agriculture. The farmer families who had initially invited him to Rangapeta had gradually withdrawn their support as they adopted tractors and weeding machines instead of ploughshares, sickles and hand weeding implements. The Shisha Kammari currently meets their needs for occasional repairs and for household iron implements. He had stopped blacksmithing almost a decade back, and had covered up the smithy behind his house with soil. His son never learnt blacksmithing. Bakkanna wanted a secure future for his son so he had sent him to school to get an education. He is now a schoolteacher in the town of Jagtial in Karimnagar district. I asked Bakkanna if he still considered himself a *Mudda Kammari*. Bakkanna replied that *Mudda Kammari* have ceased to exist with the stoppage of smelting.

*“Everyone who was a Mudda Kammari is now Kammari or something else. But we all are most certainly Viswabrahmins”* he said.

The world that Bakkanna lived in has radically transformed in his lifetime, and one can feel his acute sense of loss of identity and with the decline in the craft that defined and sustained them for generations.



#### 6.4.2 Chintala Venkatswamy of Arnakonda, *Kammari*

Chintala Venkataswamy is a sixty-two year old blacksmith from Arnakonda (48), which is a hamlet situated in Karimnagar district of Telangana, 60 Km away from Jagitial.

Venkatswamy agreed to speak to me about his life on condition that I did not take his picture. While a majority of the information presented in this section is recorded in Appendix 1, I have also spoken to his neighbours in Arnakonda and included their opinions, which are not recorded in the Appendix.

The *Pioneering Metallurgy* project identified rich archaeometallurgical evidence of past iron-smelting in the village. Venkatswamy and other villagers that I spoke to during fieldwork said that they were proud of the iron-working tradition of their village but they regretted that this tradition is in decline over the last few decades without hope of revival. Venkatswamy's life as a village *Kammari* is a case in point.

Like most other villages in northern Telangana, agriculture is the primary source of livelihood for a majority of residents in Arnakonda,. There are more than 400 farmer families in the village, each owning a small plot of land (not exceeding 5 acres). The harvest from their land is primarily used for their own subsistence and for annual payments to the blacksmiths, the carpenters and other village communities who provide them important services. There were five blacksmith families in the village to provide for the demands of agricultural implements throughout the year. Each blacksmith family forged and repaired implements for a fixed number of farmer families. The farmers usually paid the blacksmiths with a pre-determined quantity of crops from their harvest,



once or twice a year. This prestation relation of exchange had existed between the *Kammaris* and their fixed clientele for generations.

Things started to change significantly in the last decade. Venkataswamy was working in his ancestral profession as a village *Kammari* from the age of sixteen but his work as a blacksmith came to a near-complete halt five years ago. Venkataswamy's family has traditionally forged for 200 farmer families of the village. After his father's demise Venkataswamy had inherited his smithy and all his clients but over the last few decades, especially in the last ten years, the numbers of those who sought his service had dwindled to an unsustainable level. Four other *Kammari* families experienced a similar problem and this forced them out of work. While Venkataswamy and one other blacksmith from a different family remained at Arnakonda in the face of this financial setback, others have either moved to different professions (such as agricultural labour or shopkeeper), or emigrated to the towns in search of more sustainable sources of income. The other blacksmith who remained passed away 5 years ago, making Venkataswamy the sole surviving *Kammari* in Arnakonda.

*"I am the only one remaining now. And that too for small repairs and occasional works. Two blacksmiths are teachers. Their father [the other blacksmith who remained in Arnakonda] used to do blacksmithing. Even I have not worked much in last four-five years. I do not have many people coming [to me]"* Venkataswamy said in one breath.

*"What about your family? Do they not want to take up blacksmithing?"* I asked.

*“I do not have a family. I mean I do not have a son. And even if I had, they would not have taken it up. There is no income in this you see.”* Venkataswamy sighed.

I wanted to know what went wrong. Why did the farmers abandon the *Kammari* en-masse over the last ten years? Venkataswamy said that the introduction of field tractors in agriculture started the process. Although farmers had already started purchasing household items such as kitchen knives and iron-nails from the market, it did not affect the *Kammari* much. Forging and repairing agricultural implements was their primary source of income. Forging of new agricultural implements started at the end of July every year, just before the first monsoon rains Venkataswamy recalled. His clients came to him to place orders and he gave them an estimate of the quantity of iron and charcoal required to supply their needs. The farmers bought scrap iron from the dealers in Karimnagar and Jagtial and charcoal from their kitchen ovens, and then forging began. It was a busy time for Venkataswamy and other *Kammari* in Arnakonda.

*“I forged everything that a farmer needed in one day”* Venkataswamy said.

The implements that he forged for his clients included *nagulu*, *khurpelu* (spade), *kodalu* (sickle), *godalu* (axe), *karlu* (ploughshare), *palgolu* (harvesting implement), *tawra-palgolu* (grass cutting tool) and iron rims to put around bullock-cart wheels.

Based on age-old village custom, the *Kammaris* had to forge and repair as many implements as the farmer required in the course of an agricultural year (July-April). In

return, each farmer family paid Venkataswamy 5 ½ *Kuncha* of rice and 5 ½ *Kuncha* corn for every *karlu* (ploughshare) forged.

*“It was a lot of grain. I sold the excess amount in the nearby market”*

explained Venkataswamy.

This traditional village system of prestation has been disrupted with the introduction of field tractors. In order to expand their yield and provide for the increasing demand for food-grains in the market, the farmers of Arnakonda have started purchasing field tractors. Those who could not afford them began renting tractors from owners in neighbouring towns to maximize their harvest and remain in competition in terms of production. Consequently, the farmers started abandoning their traditional ties with the *Kammari*, as they did not require hand-forged ploughshares and other agricultural implements. The farmers also discovered that owing to an ever-growing demand in food crops, their harvest was fetching better prices in the urban markets. This prompted them to abandon the traditional system of payment in kind to the *Kammari* and sell all of their harvest in the market. Very few of Venkataswamy's clients still seek his services for very occasional repairs of household iron implements. All of them pay him an inadequate annual fee of five to six hundred rupees. I suggested that the *Kammari* could set up shops to sell their products beside the highways, or in neighbouring towns. That might alleviate their poverty to a certain extent. This suggestion embarrassed Venkataswamy.

*“We will never do that!”* he retaliated. *“That is the work of those low-caste Shisha Kammaris. How can we break traditions and sell our products in*

*the market? Our skill is for our village only. We cannot break tradition. How can we be Viswa Brahmins then?"*

*"But what about the Kammaris who are working in other professions like schoolteachers, or taking up carpentry? I probed.*

*"That is because of our misfortune. That doesn't change our identity. Even if you are a schoolteacher, you are from a Kammari house. You remain a Kammari. Wadla-pani [carpentry] is a part of our Viswabrahmins [caste]. A Kammari can do that of course. But we can never make things for the market." Venkataswamy explained.*

When the situation initially started to turn unfavourable for different groups of traditional craftsmen in Arnakonda, they decided to come together and form a *Viswabrahmin Sangham* (caste-association). In 1994, a *Sangham* was formed with Venkataswamy as its president, bringing together the people of the *Kammari* and the *Wadla* (carpenters) communities to safeguard their social and economic interests in the face of the breakdown in traditional village systems. The primary function of this caste-association is to extend loans to financially ailing members of the community from a common fund. They also organize community specific festivals to highlight their internal solidarity, entrench their place in village society and voice demands to the village *Panchayat* (democratically formed administrative body of the village).

#### 6.4.3 Immadi Lachhanna of Habsipur (or Ayisipur), the sword-smith

*“I do not want to be in trouble again in this age and I do not want to give you the knowledge because then you will be in trouble and tell the government that I told you how to make swords and then I will be in trouble.”*

Immadi Lachhanna, an octogenarian former sword-smith turned *Kammari* (30) was shouting at the top of his voice as we asked him about his life. His sons explained that Lachhanna had had a traumatic encounter with the police sixty-years back. He has grown increasingly delirious since then. With old age, his delirium has recently started taking violent turns. We were advised to be careful when we spoke to him, especially about sword-smithing. Gradually, after visiting Habsipur four times, I was able to piece together fragments of the life of Lachhanna, and learn about his trauma. Lachhanna was defensive as he mistook us as the police or government officials. He was not willing to disclose anything. His wife and his sons, Immadi Anandam (Fig. 6.9) (31) and Immadi Mutyalu (32) spoke to us about their lives as *Kammari*, and gave us glimpses from Lachhanna’s sword-smithing career.

Lachhanna’s family has lived in Habsipur, a village 12 km northwest of Jagtial, for generations. The Immadis are the only *Kammari* household in the village. Lachhanna’s grandfather, father and his brothers had all served various farmer families at Habsipur. Lachhanna’s father, Immadi Muttyalu became well known as a master sword-smith under the patronage of the local ruler of Jagtial. Lachhanna was taught sword-smithing by his father and became a skilled sword maker in his late teens.



*Figure 6.9 Immadi Anandam's (Lachhanna's son) Workshop. His farmer clients have come to sharpen their implements. The client whose implement is being forged or sharpened is expected to operate the bellow and help in hammering during the forging process (taken by the author)*

The years between 1946 and 1953 witnessed a period of violent political and social turmoil in Telangana. First, there was a Communist Party of India (CPI) backed armed peasant uprising in northern Telangana. The peasants were fighting against oppression by the local feudal magnates, called *Dora*. Starting in Nalgonda district, the uprising spread rapidly to Warangal, Karimnagar and Khammam districts of northern and eastern Telangana, where the rate of oppression was highest (Srinivasulu, 2014, 1973aa, 1973bb, 1973cc, 1973dd, Sundarayya, 1972, Thirumali, 2003). This was



followed by the accession of Hyderabad State into the Indian dominion by military action against the Nizam in 1953. This period saw local armed peasant militias operating in the northern and eastern parts of Telangana. They were hugely dependent on the local gunsmiths and sword-smiths for the supply of arms and ammunitions. Lachhanna's wife said that Lachhanna did not willingly supply the militia with swords and spear-heads against his patron, the ruler of Jagtial. However, the militia had coerced him and Muttyalu to work as their supplier. When the state of Hyderabad joined India, the government was quick to pacify rural Telangana by disarming the militias. Laws were passed prohibiting unauthorized manufacture of arms and ammunitions. The specialist gun and sword smiths like Lachhanna, who willingly or unwillingly supplied the militias with weapons were arrested, interrogated and released with severe warning. Although his wife and sons would not say anything in detail, they said that his trauma originated from this period of turmoil and upheaval.

After sword-smithing was halted, Lachhanna joined other male members of his extended family to work as *Kammari*. He provided his services for 12-15 small peasant families, each paying him 16 *manika* (sacks) of rice after each annual harvest.

Lachhanna had then stopped blacksmithing fifteen years ago, handicapped by his psychological instability. His sons, Muttyalu (namesake of Lachhanna's father) and Anandam, now work as village *Kammari*. Apart from dividing the client families of Lachhanna among themselves, they have taken in other farmer families who sought their services after other *Kammari* families emigrated from Habsipur. Anandam and Muttyalu now forge for 20 peasant households each. They said that they earn enough from their ancestral trade to provide for their family.

#### 6.4.4 Kasarla Narasaiah of Kodimiyala, the scissor-smith

Kasarla Narasaiah (Fig. 6.10) (52) is a 49-year-old *kammari* from the village of Kodimiyala, 25 Km south of Jagtial. I was directed to Narasaiah by local acquaintances in Jagtial, who said that Kodimiyala has a long tradition of scissors-smithing and Narasaiah was the last of the smiths. On reaching Kodimiyala, we asked in the shops about the scissor-smiths. They showed us to a street with a series of car and motorbike repair shops. This was the locality where the *kammari* families of Kodimiyala lived. Here Narasaiah lives in a two-storied house with a welding shop attached.

Narasaiah is from a *kammari* family. His father, like all the *Kammaris*, served only farmer clients. .

“So he was not a scissor-smith?” I asked.

“No. He did not do scissors work” he said.

This was contrary to what we were told by our contacts in Jagtial. So I asked Narsaiah why he did not continue with his family profession as a village *kammari*. Narasaiah said that he and his brother had initially started training as a *kammari* under their father when he was 14 years old. However, the number of farmer families who had traditionally come to their father, dwindled. Those who remained wanted to pay in cash, which was not enough for the sustenance of the family. That was when his brother and him were sent to the town of Kammarapally (about 70 km away by road) to live with a relative and apprentice under a master scissors-smith there.



*“I went to Kammarapally. I have some relatives there. I worked in a workshop as an apprentice. Kammarapally is near Metpally. I learnt scissors making there. Me and my brother.”* Narasaiah explained.

I asked him about his apprenticeship days. Narasaiah said that he and his brother were among a group of five apprentices. All of them learnt scissor-smithing in one year. Then they had a choice, either to leave and start their own smithy or keep on working in the workshop. For apprenticeship, they had to pay Rs. 700 per month to their master. He and his brother continued to work in the workshop under their master, V. Srimaiya for ten years. Later they returned to the village to work as scissor-smiths.

Narasaiah showed us a smooth disc. He explained that this was the most important tool needed for scissor-making. The scissor-smiths had to manufacture the disc themselves, if they wanted to have their own business. The disc is required to manually sharpen and twist the scissor blades to precision. He said that the disc is made by mixing oil, lac (a scarlet, resinous secretion of an insect species *Kerria lacca*) and a special type of fine red sand brought from near Delhi.

*“It took me ten years to make this disc. Then only I could start work by myself”* Narasaiah explained.

Narasaiah recalled that there were 21 active *Kammari* families in the village during his childhood but now only 5-6 families are working in their craft. None of these 21 families used to make scissors. They gradually went out of work about two decades back, and most of them emigrated to the Gulf States.



*Figure 6.10 Kasarla Narasaiah's temporary smithy at the front porch of his house. (taken by the author)*

*“There was no work in the village due to the coming of tractors. Father sent us to Kammarapally to acquire this new skill so that we can survive in the village, earn some living and provide for the family.” Narasaiah said.*

*“Did it work? Were you able to make enough?” I asked.*

*“I learnt work not from my father. I learnt work as an apprentice. Then I came back to the village and made scissors here. My brother and me. had six people working under me. They learnt from me. At first the business was good. But then people started buying scissors from shops. So the business went down. I went to*

*Bahrain to work as a day labour in construction. But I lost money there and had to come back. Now I only have this welding shop and do small repairs.”*

Narasaiah said.

*“Did you make scissors for people in Kodimiyal only, or were there demands from other nearby places. Siricilla for example?” I asked.*

*“I had customers from the entire region. People from Kamareddy, Jagtial, Siricilla, Armur came to purchase scissors in bulk from me.” He replied.*

*“Did you make scissors in bulk or only according to orders?” I asked.*

*“I got orders from all these places. From shops and tailoring shops. When they ordered I made as many they wanted. I did not make extra.*

*Sometimes the customers will come and place orders. I will have to carry the order to their shops and deliver them.” Narasaiah explained.*

When Narasaiah and his brother returned to Kodimiyala, they started working as scissor-smiths.

*“I used to sell a pair of scissors for Rs. 30 each. I made thirty pairs every day. My scissors were in demand then.” He recounted.*

When I met him again the next day, I wanted to know more about Narasaiah’s work as scissor-smith.

*“You said that you had six apprentices. Were they all from blacksmiths families?” I asked.*

*“No they were from different communities. Not Viswabrahmin either.”* He said.

*“Is it allowed by the community?”* I asked.

*“I took them because only they showed interest in the work. None from the Kammari community wanted to join. They were all going for money in the Gulf. I needed helpers to make scissors. It is not a one-person work. The people from my community opposed. But I still took them because they were interested in learning.”* Narasaiah explained.

I asked him why he needed helpers to make scissors.

*“2 workers to forge the blank of the scissors. This is always a rough forging and how they learn first. The helpers, who learn, prepare the blade. But the blades need proper sharpening and delicate fixing. That is my job as an expert.”* Narasaiah explained.

I asked him about the customers who bought the scissors from him. I wanted to know how the system of exchange worked, and which communities were involved in the network. Narasaiah said that the customers were from all communities. There were weavers, barbers and normal shopkeepers. They used to come for his products regularly for the 16 years he worked as scissor-smith. They paid in cash. I asked him if the customers who purchased scissors from him brought the raw materials to him. He said that he had to purchase the required amount of iron and charcoal from Jagtial. The iron scrap used for scissor making is of the same quality and type as that needed for

agricultural implements. I asked him what kind of scissors he used to manufacture. Narasaiah said that he manufactured scissors for domestic use, scissors for weavers and barbers and also for tobacco cutting.

*“Was it difficult to be a Kammari and manufacture for the market and accept cash payments?”* I wanted to know.

*“We had to do that to survive. The farmers were not willing to pay crops anyway. Scissors-smithing paid better than what the farmers paid [in cash]. I am not a Shisha Kammari. I did not make scissors for the market. I only made as many as was [dictated by] the order.”* Narasaiah said.

*“Do you now make agricultural implements as well?”* I asked.

*“I used to make agricultural implements. I made them for four years after I stopped making scissors. Then I went to Bahrain. There was no money here.”* Narasaiah said.

*“Did you take payment in cash for agricultural implements?”* I asked.

*“Yes”—He said.*

I asked him if there were enough demand for his scissors in the future, would he consider restarting his business again.

*“I made scissors for 16 years. I stopped making as the demand reduced. The workers and the helpers reduced. Now there is an increased demand*

*for the work. But there are no helpers to help me. It cannot be done alone.”*

Narasaiah said.

Narasaiah, along with other male members of all 21 *Kammari* families in Kodimiyala, are members of the village *Kammari Sangham* (caste-association). It was set up a few years back primarily to safeguard the financial interests of the village *Kammari* families at the time when their livelihoods are being displaced. Bank loans and other forms of government financial aid have not been forthcoming. The *Kammari* were forced to take out large loans at unfavourable interest rates from financially well-placed peasant families. Many *Kammari* like Narasaiah, fell into debt after having been cheated with the false promise of high income in the Middle Eastern countries. To prevent further financial hardship, the *Sangham* set up a common fund from where the *Kammari* can withdraw loans every month with minimal rate of interest.

#### **6.4.5 Ravidas Chauhan of Jagitial, *Shisha Kammari* (itinerant blacksmith)**

When I first met him, Ravidas (Ravi) Chauhan (Fig. 6.11) (37) was repairing his motorbike in front of his shack beside the highway between Jagitial and Rayapatnam. He is a *Shisha Kammari* and the motorbike is very important for his livelihood. As an itinerant blacksmith, Ravi needs to purchase scrap iron and charcoal from the market in nearby Jagitial and transport these back to his shack that serves as both his workshop and residence. After forging implements, mostly for domestic use, such as axes and knives of different sizes, he travels to the villages on his motorbike or public transit to sell these in the weekly village markets. A number of customers come to his workshop from Jagitial and neighbouring villages to purchase or repair domestic iron implements.

Ravidas Chauhan is 32 and he has lived in and worked from this shack all his life. His family have been in fulltime blacksmithing for generations. Like most *Shisha Kammari* in Karimnagar district, he belongs to the *Lambada* community, a tribal group scattered in hamlets throughout the forested terrains of northern Adilabad district. Ravi's grandfather had migrated to Jagitial some eighty years ago from one such small hamlet near Utnoor, 90 Km away.

He pitched his tent and established his smithy on the same piece of land that now belongs to Ravi. Behind the smithy that Ravi inherited, I could see a TV at the far end of the tent, and a few plastic chairs to sit on. There was a cooking hearth and some welded scrap iron racks full of stainless steel utensils for cooking and eating. There also were a couple of makeshift camp beds. Ravi lives here with his family of five. His wife and his elder son help him at the smithy every day. Unlike Bakkanna and Venkataswamy, Ravi works all throughout the year.

*"I am a 24 hour blacksmith"* he said.

If asked he will work for 24 hours every single day of the year. However, work is regulated by demand. Ravi said that although he has a lot of farmer clients, he forges only on piecework basis. There is no custom-regulated oral contract between him and his clients. Before monsoon every year, he forges a good number of agricultural implements in advance. The farmers come to his workshop or his shop in the village markets to purchase these implements. Some of these customers have been





*Figure 6.11 Ravidas Chauhan and his youngest son at the ancestral smithy in front portion of their family shack (taken by the author)*

purchasing the implements forged by him for quite a long time, because they preferred his products to those of other blacksmiths. However, if his customers wished, they can choose to go to other blacksmiths. All of his customers must pay him in cash. He said that the demand of agricultural tools fluctuates each year with the changing nature of the monsoon. I asked him if his business is affected by the use of field tractors and other machines in agriculture. Ravi said that it does not concern him because people would still need iron-implements for their household use, and his products are cheaper and better than those made in the factories. I was impressed by his optimism,



something that lacked in all interactions I had with the rural *Kammari* and *Mudda Kammari*.

I visited Ravi once again after a sudden overnight thunderstorm, common in this part of Telangana in May-June. Ravi's shack was in tatters and his family had taken shelter in a partially constructed building adjacent his shack. I expressed my concern and asked why he is not moving into a more permanent residence in the town or a neighbouring village. Ravi said that the house under construction, which served as his present shelter, actually belongs to him but he doesn't want to finish building it yet (Fig. 6.12).

*“Have you seen a Shisha Kammari without his shack? Thunderstorms are part of our lives. We have always lived in this shack and worked in this shack. I cannot abandon it.”* Ravi said.

## 6.5 Towards a two-part analysis

The diversity of iron-working communities in northern Telangana is highlighted through the lives of these five specialist practitioners. Their lived experiences also underscore a radical change in the craft and their identity over last three decades. While Ravidas Chauhan's fortunes improved with an increase the number of clients, the lives of the other four iron-workers were displaced as the demand for their services gradually declined.



*Figure 6.12 Ravidas Chauhan's house under construction beside his ancestral shack (taken by the author)*

Bakkanna, like most other *Mudda Kammari* faced the reversal in fortune twice—the first time, with the decline in indigenous iron-smelting in 1940s, and secondly in the 1990s when as a blacksmith his clients adopted field tractors and other machines to cultivate their lands. The rupture of traditional prestation relations jeopardized the relative economic security enjoyed by the rural *Kammari*. Demand for their services were supplanted by mechanization of agriculture, influx of industrial products in the village markets and ascendancy of the *Shisha Kammari*, who were willing to accept cash and forge on a piecework basis. Venkataswamy's life represents this process. Lachhanna and Narasaiah as specialists in manufacturing sword and scissors, also experienced similar kinds of displacement, as demand for their products declined.

Another feature that these five lives underscore is that the decline in specialized craft production has transformed the identities and power-relations among various iron-working groups in northern Telangana. Bakkanna, Venkataswamy, Lachhanna and Narasaiah all identify themselves as *Kammari*. But often, as in my conversation with Desaradi Narasaiah at the beginning of this chapter, they sound uncertain. They consciously attempt to justify their claim to *Kammari* identity even though they no longer perform the craft. Eventually they settle on being *Viswabrahmin*. This fundamental dilemma about their place in society among iron-working groups of northern Telangana is well represented in the above biographical narratives.

This dilemma has resulted in recent homogenization in iron-worker identities in the area. As a result, during the initial stages of the fieldwork it was not immediately possible to tease out the technologically important distinction between blacksmith and smelter. On every first meeting, the village blacksmiths had unequivocally introduced themselves as *Kammari*, and said that they belonged to the *Viswabrahmin* “caste” along with four other artisan groups. There was a conscious attempt to present the egalitarian and homogenized character of the *Viswabrahmin* community to me—an outsider, who wanted to study the community. The *Kammari* repeatedly advised me to study the *Viswabrahmin* “caste” as a whole-- as it was not possible to understand the *Kammari* in isolation. They pointed out that all *Kammari* are the same, and that only *Shisha Kammari* are outside the *Viswabrahmin* caste. It was made clear that “they” were outsiders, who had usurped the livelihood of the *Kammari*. I was told that the *Shisha Kammari* were not the true blacksmiths, because they manufacture for the village and urban markets and accept cash on a piecework basis—an impure form of iron-working.

The *Shisha Kammari*, in turn, said that the *Kammari* were lazy and that had caused their own current financial distress. The *Shisha Kammaris* “do not rest”.

While the *Kammari-Shisha Kammari* antagonism was clear, I wanted to examine beneath this superficial homogeneity of the *Kammari* community. Despite being made to believe that all iron-workers were part of *Kammari* community, there was visible tension when I wanted to talk about smelting and the group associated with it. As I repeatedly visited the same villages, and became familiar with some of the iron-workers like Bakkanna, Narasaiah, Venkataswamy, it became possible to gradually peel the layers of homogeneity and look into the diversity of specialist practitioners.

As the diversity became apparent, my research interrogated the complexities of identity transformation in the context of the decline of iron-working in northern Telangana. Based on ethnographic fieldwork, the archaeometallurgical record and archival data, this thesis analyses this process under two distinct themes. Part A investigates the intricate relationship between indigenous smelting technology, smelters and landscape. With the help of the memories on of elderly smelters, Chapter 7 attempts to form a more nuanced understanding of iron-smelting technology and the social context in which it operated. Chapter 8 situates indigenous iron-smelting technology in northern Telanagana in the physical space of northern Telangana. In Part B, the link between the decline in craft and homogenization of identity is explored. Chapter 9 analyses the causes of the decline in traditional iron-working in northern Telangana. Chapter 10 will explore various ways the *Kammari* community has responded to this rapid decline. The

homogenization process of the *Viswabrahmin* community discussed in brief at the opening of this chapter, will be taken up in further detail here.

# **PART A**

## **TECHNOLOGY, PEOPLE AND LANDSCAPE**

## CHAPTER 7

### IRON-SMELTING IN NORTHERN TELANGANA:

#### DISCERNING TECHNOLOGY AND CRAFT SPECIALIZATION THROUGH MEMORY

##### 7.1 Introduction

Part A of this thesis (Chapters 7 & 8), will investigate the relationship between pre-industrial iron-smelting, the *Mudda Kammari*, and the physical space where iron-production was organized. This will be achieved in two ways. Chapter 7 seeks to reconstruct the smelting technology that was prevalent in the late 19<sup>th</sup> and early 20<sup>th</sup> century in Telangana with the help of the memories and lived experiences of the surviving, elderly members of the *Mudda Kammari* community in the study area. Based on their memories and experiences, I will trace the *chaîne opératoire* of iron production through technological choices and styles employed by the *Mudda Kammari*. The social organisation of production will be studied and finally we will examine the economic network through which the iron blooms travelled to the local and trans-local markets. In the next section (7.3), the nature of specialization of iron-smelting in northern Telangana will be analysed following the parameters put forward by Costin (1991). Finally, I will survey various survival strategies adopted by the *Mudda Kammari* groups in the study area to sustain through the period of decline in iron-smelting during the first half of the 20<sup>th</sup> century. The reference to a majority of the interactions used here is given in the bold figures after the names and can be read in full in Appendix 1.

## 7.2 Iron-smelting from ethnographic narratives

In this section, I will present three narratives on traditional iron-smelting in the study area. These narratives constitute the experiences of a small group of octogenarian *Mudda Kammari* who either actively participated in, or observed iron-smelting during their early youth. At least one of them has passed away in the course of the fieldwork, and others are in ill health. Traditional iron-smelting in the study area was in steady decline throughout the early 20<sup>th</sup> century, and finally came to an end in the late 1940s. Therefore, this surviving group of *Mudda Kammari* remain the only direct link to discern the social, technological and the economic networks in which pre-industrial iron-smelting functioned in northern Telangana, albeit in the final days of its decline. Their narratives also provide a unique emic perspective of how the smelters adopted strategies to sustain themselves and their craft through a period of steady decline.

After presenting the narratives of the elder *Mudda Kammari*, I will use the archaeometallurgical record to tease out the information that can help in explaining the social, technological and economic organisation of iron production and discern their manifestation on the physical.

The narratives below are presented in a conversational style based on several interactions recorded in the field notebooks. However, as mentioned in 4.3.4, these conversations took place with the help of an interpreter who translated between Telugu and Urdu. The English is mine, and therefore does not represent the exact way these words were spoken by the interlocutor.



### 7.2.1 The narrative of Kuchanapally Bakkanna

I have introduced Kuchanapally Bakkanna's life in the previous chapter (6.2). Bakkanna had actively participated in iron-smelting in Dasturabad from his early teens. He started off as an apprentice under his father, and eventually became one of the master smelters during the final decade of iron-smelting in Dasturabad. Aged ninety, he was the eldest *Mudda Kammari* alive in the Dasturabad region at the time of this research to have directly been involved in iron-smelting. Bakkanna passed away in February 2015 while fieldwork was still going on. Below, I present a narrative of his experiences as an iron-smelter. This narrative is compiled from my field notes from three long discussions with Bakkanna.

#### ***The Mudda Kammari community in Dasturabad***

During our first meeting (26), I asked Bakkanna about the *Mudda Kammari* community in Dasturabad. Fifty *Mudda Kammari* families presently live in Dasturabad, making it the highest concentration of *Mudda Kammari* population in the study area. Bakkanna explained that in his teens, Dasturabad was the only place where iron-smelting took place. Smelters from a number of adjacent villages used to come to Dasturabad for smelting and many of them eventually settled there with their families. He said:

*“There were two Kolimi [smelting furnace] in Dasturabad, People from Pembi, Kadem and other villages came to make iron in those furnaces. This was the only place where iron was made then. Other places stopped.”*

### **Social organisation of production**

*“There were 16 peddoru [lit. elders or ancestors/in this case, senior smelters] in Dasturabad. They mainly worked together in those two Kolimi. The younger ones and others coming from other villages helped them*

He also added that women and children were not allowed participate in the work.

*“Women’s work is in the houses. This is outdoor work. This is not what they do.”*

I asked Bakkanna if fixed duties were assigned to each of those who participated in the smelting.

*“This was determined by the peddoru. Every time they arranged for smelting, they divided the work among themselves and among us, those who helped them. Because we were learning, we were assigned different tasks each time. Everyone needed to learn each aspect of the work. The duties came in turns. And there were always senior people in the group to supervise the work.”*

### **Ore collection**

Iron-smelting in the study area relied heavily on the nature of the summer monsoons. The monsoon rains washed down iron-rich magnetite sand, locally known as *wuske*, from the low hills of the region. After each shower, the *Mudda Kammari* exploited the beds of numerous seasonal streams to collect sediments of *wuske* (Fig. 7.1).

*“My grandfather told me that their work suffered when there was less rainfall. Their work was like the farmers [dependent on the monsoon], less rain, less wuske and so less iron. But for us it did not matter much. We made a small amount of iron. There was no demand you see. Rains did not matter to us. And then the wuske stopped coming [in the streams] near Dasturabad. We could not search elsewhere in the forest. Government didn’t allow us. It [iron-smelting] wasn’t profitable anyway.”*

Further, Bakkanna described the ore collection process:

*“We brought wuske from the nalli [stream]. Washed it there, pulverised it if needed. Then we brought the wuske back to Dasturabad.”*

*“How did you transport the wuske?” – I asked.*

*“ [We] collected the wuske in baskets, and sometimes carried these baskets over our heads. On other occasions we brought these back to the village on a bullock cart.”*

Bakkanna explained that 4-5 *Mudda Kammari* were required to perform this task.

This group was normally made up of a mix of experienced *Mudda Kammari* and young apprentices.



*Figure 7.1 Yemnuri Pedda Gangaiah of Munnial led us to a dry seasonal stream on the foot of a low hill near Dasturabad and showed us the deposits of wuske. The Mudda Kammari of the Dasturabad area collected wuske from the same stream in the early 20th century. (taken by the author)*

### **Charcoal preparation**

When one group of *Mudda Kammari* was busy in collecting ore, another mixed-experience group of 4 to 5 smelters were engaged in preparing charcoal.

*“A group of 4 or 5 of us went to a place deep inside the forest where Sandra kattu [Acacia catechu] was available. We took a cart with us. Sandra kattu and Korda kattu were collected. Then we dug a large hole in the ground,*

*dumped the wood in the hole. It was then covered with green leaves, twigs and dust and set on fire. It took two days to produce the boggu [charcoal].”*

During fieldwork, I spoke to a forest ranger at the Kawal Tiger Reserve to ask for permission to locate slag heaps deep inside the reserved forest. Although permission for this was not granted, the ranger said that he had seen several large empty cavities in different parts of the forest. Later a forest tracker and some woodcutters in another village within the forest corroborated this. These large cavities are locally known as “wells dug by the ancestors”. These could be the remains of the cavities in which the Mudda Kammari prepared charcoal. Since this was done deep inside the forest, removed from public view, the knowledge about the function of these cavities only survive among the elder members of the *Mudda Kammari* community. However, since I did not get any opportunity to see these cavities myself, I refrain from making further assumptions.

The group of charcoal makers camped at the charcoal preparation site, to oversee the process. The smouldering dump had to be constantly inspected to ensure that the process was working properly. More importantly, the fire had to be doused with soil at the right time to prevent the woods from burning more than required. After the fire was doused, fresh charcoal was transported to Dasturabad on bullock carts.

*“4 bullock carts full of boggu were made each time.”*

*“Did you make boggu every time iron was made?”—I asked.*

*“4 carts of boggu lasted for a few rounds of smelt. We made more when we needed. We did not do that much smelting in our time. So four carts lasted for a long time.”*

I explained that in the academic literature, exhaustion of adequate timber for making charcoal has repeatedly been cited as the primary reason behind decline in iron-smelting. I asked Bakkanna if this was true for Dasturabad area as well.

*“That was why our work stopped! You cannot find any Sandra in the forest near Dasturabad now. It is all gone. The government did not allow us to search for it deeper inside the forest.”*

Bakkanna further explained that he had heard from his grandfather that they knew several places inside the forest where *Sandra* was found. After exhausting the resources at one spot, they moved to a different part of the forest, allowing the trees to grow back in the exhausted area.

*“This stopped during my father’s time. The government stopped us from entering the forest at will.”*

### ***The furnaces***

As Bakkanna explained earlier, there were two smelting furnaces in operation in Dasturabad. During our first meeting I asked Bakkanna about the ownership of these furnaces. Bakkanna said that the furnaces did not belong to anyone in particular. It belonged to the *Mudda Kammari* community of Dasturabad and its neighbouring villages.



*“These were for the entire village. Whoever brought wuske, can smelt there. We worked together as friends.”*

On our subsequent meetings we discussed about the furnace construction process. Bakkanna described that the *kolimi* were made from fine clay locally available in Dasturabad from the large tank at the edge of the village. It took three days to make each furnace and the tuyeres from the clay. I asked if the women played any part in bringing and preparing the clay for the furnace and the tuyeres.

*“No. We did it ourselves. Women did not participate. They took care of the household as we worked outside.”*

I then asked Bakkanna’s wife how she spent time when Bakkanna was busy with iron-smelting and related activities. She said that she took care of their child, and prepared food and performed other household chores. Sometimes she did weaving or made baskets for their own domestic use.

*“Now most women roll bidi [local hand-rolled cigarettes] for factories. But we did not have it then.”*

The *kolimi* were 5-6 feet in height. While tuyeres were discarded after each smelt, the furnaces were repaired and reused for subsequent smelts.

*“There was a second chinna kolimi [smaller furnace] where the mudda was cleaned after each smelt. This looks more like a Kammaripani kolimi [blacksmith’s hearth].”*

Bakkanna said that a total number of eight tuyeres were required per smelt in Dasturabad: two each for the 2 larger smelting furnaces, and a pair each for the *chinna kolimi* where the bloom was refined through repeated hammering to extract slag from within.

### ***The bellows***

Each smelting furnace and refining hearth required a pair of hand-operated *pedda tittulu* (large bellows). Bakkanna explained that the bases of these round bellows were made of wood, and the hollowed out space in the middle was covered by buffalo skin. These bellows had to be hand operated, in contrast to several tribal iron-smelting groups of central India, who use feet operated bellows (Elwin, 1941). A *Mudda Kammari* would sit on the ground, or on a stone, in between the bellows and operate them using both hands. Bakkanna described the process:

*“We took turns in operating the pedda tittulu. It needed to be constantly operated by hand to supply proper amount of air in the kolimi. Less draft, there is not enough heat, and excess draft will retard the fire. One person had to operate both bellows with both hands, and we had to take turns.”*

Bakkanna said that the senior smelters supervised the smelting process and instructed the bellow operators about increasing and decreasing the pace to control the draft. The bellows were connected to the clay tuyeres through bamboo nozzles. I asked if the *Mudda Kammari* made the bellows themselves.



*“No. The bellows were made from buffalo hides. We do not touch buffalo meat, so we did not make the bellows ourselves. Those belonging to the Madiga community made the bellows for us.”*

The *Madiga* are a marginalised community of leather workers, agricultural labourers, village drummers and announcers in Telangana. They were, and to a large extent, still are considered to be untouchables, and are placed very low in the local caste hierarchy of the region. Since the *Viswabrahmin* craftsmen refuse to provide services to them, the *Madiga* community is divided in some sub-groups who specialize in carpentry and blacksmithing.

Bakkanna said that because of the intensity of use, the buffalo hides that covered the bellows needed replacement every two days of smelting.

*“A lot of repair was required. We needed the Madiga very frequently.”*

*“How did you pay the Madiga?”*- I asked.

*“Most of the time we gave them a share of the grain that the farmers gave us. Sometimes they asked for money.”* –Bakkanna explained.

### ***The smelting***

*“When we made a new kolimi, we worshipped our goddess Mahisamman and Kalika devi and sacrificed a goat near the furnace before smelting could begin.”*

The smelting normally started around midnight and was complete by the early morning.

*“We started around 2 o’ clock in the night and by 9 o’ clock in the morning it was done. 2 mudda were produced in each furnace. If everything went alright, we got 4 mudda per smelt [in two furnaces].”*

Bakkanna explained that 8 people worked during smelting in each of the two furnaces. Each took turns to operate the bellows and supply ore and charcoal to the furnace. A senior *Mudda Kammari* supervised the operation and occasionally looked inside the furnace through a tuyere to check the progress of smelting.

*“The boggu and wuske were placed in layers inside the furnace. We added more as and when required. During this, the pedduru occasionally cleared the chityam [slag] through a channel on one side of the kolimi.”*

After the smelting was complete, the *mudda* were dragged out using large tongs by breaking a portion of the furnace.

I asked Bakanna the reasons behind conducting the smelting at night. He explained:

*“It is cooler in the night. Also it is easier to see if the mudda has formed. The colour of the fire in the furnace changes. It becomes indradhanushalu [like a rainbow] when mudda is completely formed”*

After the smelting process is complete, the *mudda* is dragged to the nearby refining hearth, which somewhat resembled the hearth used for blacksmithing. Bakkanna explained this process:

*“We took the mudda out and hammered it. There were still some chityam [slag] in the mudda. So we placed it in a small hearth and hammered it to take the chityam out. This [process] is called Lappa. Then we divided the mudda among us. We made implements out of these or sold these to the Are Vaishya [alt. Sahukar or middlemen]. After that we repeated the [smelting] process again when we needed to make more mudda.”*

### ***Selling the bloom***

After the refining process was complete, the *mudda* was beaten in the refining furnace into a long bar, locally known as *lappa*. The *lappa* was divided between the *Mudda Kammari* who participated in the smelting. A portion of the *lappa* was sold to the *Are Vaisya* or the *Sahukar* (middlemen) who had given an advance in cash for a certain amount of iron. There were other middlemen with , whom the *Mudda Kammari* had long established exchange relations. They also visited the village in between July and September, the summer monsoon period and purchased *lappa* with cash. The middlemen then sold these iron bars in several local village markets, and in the urban markets of Nirmal, Jagitial and Raikal.

*“Per mudda we earned 1 Rupee. We had to hide the money under the soil. There were thieves who knew about these transactions. We had to protect our earnings from them.”*

The *Mudda Kammari* sold the remaining iron to their farmers of Dasturabad and neighbouring villages. This transaction also took place in cash. Many of these farmers were long-term clients of individual *Mudda Kammari* families of Dasturabad. After purchasing the iron from them, the farmers placed orders for their annual requirements for agricultural implements.

*“We produced whatever the Ryotlu [farmers] required. We only made palgulu [digging sticks] for the Gondolu [the Gonds, a tribal community]. But for the Ryotlu of Dasturabad we forged all other agricultural tools for the rest of the year.”*

*“How much did the farmers pay you for this?”*

*“They paid 10 Kuncha [approx. 60 kg.] of rice per karru [ploughshare]. After I moved here to Rangapeta I asked for 20 Kuncha for each karru. We did not make mudda anymore. So I lost income from that..”* - Bakkanna explained.

### **7.2.2 The narrative of Yemnuri Bodanna and Kuchanapally Rajaram**

Yemnuri Bodanna (15 & 41) and Kuchanapally Rajaram (41) (Fig. 7.2) are two senior *Mudda Kammari* who participated in iron-smelting in their youth. Bodanna is 85 years old. After Bakkanna passed away, he now is the most experienced iron-smelter alive in the Dasturabad area. Bodanna has a restricted mobility due to a birth-defect. Because of this, he was responsible for supervising the construction of furnaces and tuyeres, while the other male *Mudda Kammari* went to the forest to collect ore and prepare charcoal. During smelting, Bodanna sat by the furnace and supervised the apprentices, advising them when to add ore and charcoal to the

furnace. Consequently, during our interactions, Bodanna was able to describe the furnace construction process in more detail compared to the other senior *Mudda Kammari*. In contrast, he only possessed a secondary knowledge of charcoal preparation and ore collection processes.



*Figure 7.2 (from left) Kuchanapally Rajaram, Yemnuri Bodanna and Kuchanapally Kondaiah: three of the senior most Mudda Kammari of Dasturabad. (taken by the author)*

Kuchanapally Rajaram, another octogenarian *Mudda Kammari*, who is slightly younger than Bodanna, was directly involved in ore collection and charcoal making. He was still an apprentice when iron-smelting ended in Dasturabad. Together, Bodanna and Rajaram complemented each other's experiences during our interactions. Below, I present their joint narrative. A large part of their

experience with iron-smelting mirrors that of Bakkanna, and hence, these sections will not be repeated. Their unique insights are outlined below.

### **Ore collection**

The ore collection process described by Rajaram was similar to that recorded by Bakkanna, but Rajaram was able to explain the process with more clarity than Bakkanna.

*“During the rainy season, black wuske gets deposited in several spots along the course of the nalli. The pedduru knew about all these spots very well. We used to venture deep inside the forests along the valley of low hills [where these spots were] to collect wuske and bring it back to the village.”*

Bodanna reiterated what Bakkanna had said about the reliance of smelting on the amount of rainfall during the summer monsoon:

*“Smelting depended on the availability of wuske. The quantity of wuske depended on the amount of rains. If there was less rain, there would be less wuske. Smelting suffered. We waited and prayed for more rain every year.”*

Bodanna was in charge of the ore refining process, which was done on the bund of the village tank. This place is situated close to where a majority of the *Mudda Kammari* families presently live in Dasturabad. He explained the process:

*“After they brought the wuske in the village, it had to be refined. There were sand particles, small stones and river pebbles which needed to be removed*

*before we could use the wuske for making mudda. The wuske was washed in flowing water [for this].”*

Bodanna explained that the flowing water of the irrigation canals coming from the tank was used to refine the ore.

*“Who did this? The women?”* -I asked.

*“No. We did it ourselves. Women did not do anything. This is a male work.”*—Bodanna and Rajaram replied.

### ***Charcoal preparation***

Bodanna, who had indirect knowledge of the charcoal preparation, told me that timber from three species of tree was used in making *boggu*: *sandra kattu*, *korishe kattu* and *tiruwan kattu*. It was possible to identify the scientific name of *sandra* only, and has been mentioned earlier (see 7.2.1). The common English names and scientific names of *tiruwan* and *korishe* could not be traced. The senior *mudda kammari* in many villages told me that these species have now become inaccessible because of their remote location inside the reserved forest, where the Indian Forest Act prohibits access.

Rajaram was one of the apprentices who worked under Bakkanna’s supervision in charcoal making. Rajaram was able to explain the process with more clarity than Bakkanna. He said:

*“The peddoru knew spots where sandra, korishe and tiruwan were available in the forest. They took 5 or 6 of us to the forest to select suitable trees.*



*Then some of us would cut those trees, while others dug a large hole nearby. Wood from all three types of tree was dumped together in the hole. Then we lit the fire from the bottom and covered the top of the dump with some dry grass and soil. The wood needs to burn slowly you see. The soil prevents air from escaping. Finally, after waiting for 2-3 days, we doused the fire by throwing more white wuske (sand) on the dump.”*

*“Did you always get wood from one spot in the forest?” - I asked.*

*“Earlier our fathers and grandfathers did not need to go far. There were more trees available near Dasturabad. In several spots, in fact. They discussed and selected a suitable spot from time to time. But during our time, we had to go inside the forest for the timber. This required government’s permission and we had to pay a large sum of money to the them each time we wanted to cut down trees from inside the forest to make boggu.”*

*“So when you smelted, boggu was only available in one spot?”—I asked again.*

*“Yes. Only that spot was allowed when we paid the fees. Then the trees there were all cut down. Now the trees are deeper inside the forest where we cannot go. The Peddoru told us about those spots. But we were not allowed to go there. Our worked stopped then. This was one of the main reasons [for the decline in smelting in the area].”—Bodanna explained.*



I asked how much money they needed to pay the government. Bodanna said that he was not directly involved with the process, so he did not know. The senior *Mudda Kammari* negotiated the amount with the local forest officer.

### ***Furnace description and smelting***

Bodanna supervised furnace construction, while other *Mudda Kammari* like Bakkanna and Rajaram were busy preparing charcoal and collecting ore in the forest. Therefore, Bodanna's description of the process is more detailed than both Bakkanna and Rajaram.

*“Kolimi is like a [traditional] cooking hearth. It is made of three parts. First, the base is prepared by placing three large pieces of kallu [stone] spaced like a triangle on the ground, just like our kolimi for cooking has three legs. The gaps between these three stones are filled using clay, just like it is done in the cooking kolimi. Just like the kolimi for cooking, the inumu [iron] kolimi has a flared mouth. We call this gummita or nade.”*

*“Which type of clay is used to make the kolimi?”—I asked.*

*“Kummari mitti [clay used by the potters], we use kummari mitti. I used to send some young people to get the mitti from the pond over there. And they kneaded it and prepared it for the kolimi in front of me.”- Bodanna recollected.*

After constructing the furnace and the tuyeres, these were left to dry under the sun for three days. However, when asked, if the furnace was protected from showers

with a temporary shade above it, during the drying process, I did not get any clear reply. Bodanna mentioned that a fire was created surrounding the furnace if it was found that the clay of the furnace and the tuyeres were not suitably dry before the smelting. Although it was ambiguous in translation, it is possible that the tuyeres and the furnace went through some sort of pre-firing process to strengthen these, before the smelting could start.

I asked Bodanna about the smelting process. Rejaram and Bodanna's description was similar to Bakkanna's, but they were more articulate than him. They described that two furnaces operated in Dasturabad for smelting, and each smelting furnace had one refining hearth each near it. The smelting furnace was 5-6 feet tall.

Bodanna said:

*"We had to climb with a ladder to feed wuske and boggu to the mouth of the nade when we made mudda."*

I asked them about the order in which ore and charcoal was put into the furnace before smelting started.

*"The kolimi was filled with boggu and wuske in several layers. First boggu was kept. Then wuske, then again boggu and then wuske and finally boggu."*

*"How much of each?" - I wanted to know.*

*"If you put four baskets of boggu, then you need to put only one basket of wuske."*

Total of 16-20 *mudda kammari*, participated in smelting at Dasturabad when both furnaces were operated simultaneously. 8-10 *Mudda Kammari* worked at each furnace. During each smelt, younger smelters, who worked in shifts, operated the pair of bellows in each furnace. Each shift lasted 30 minutes approximately.

*“During the smelt we all helped each other. It was a complete teamwork.*

*This is unlike the kammarolu [blacksmiths], who work individually. Some helped refilling the kolimi with boggu and wuske, while others operated the tittulu, or cleared the chityam.”*

Bodanna and Rajaram mentioned that the slag channel was left open to allow the slag to continuously flow out of the furnace throughout the smelting process. The slag-channel was situated near the base of the furnace, directly opposite to the tuyeres. Unlike Bakkanna, neither Bodanna nor Rajaram mentioned the existence of a separate inspection hole in the furnace. When I asked how they judged if the smelting was successfully completed, Rajaram said:

*“When the hole for pedda tittulu were blocked, we knew that mudda had formed. We then broke that part of the kolimi to drag the mudda out.”*

*“Were all 20 of you constantly present during the entire smelting process?” -*

*I asked.*

*“Yes. There was a lot of work to do. Cannot be done if everyone was not working together.” - Bodanna replied.*

*“What did you eat or drink? Did the women bring food for you during the smelt?”- Il asked.*

*“If we needed to eat, we came home. But we made inumu [iron] from midnight, after we had eaten our dinner. So we did not need to come home. We had plenty of toddy to drink. It keeps you cool and gives strength. It used to be very hot near the kolimi.”—Bodanna explained.*

After smelting, the *mudda* was dragged out from the furnace using large tongs and then cut into two halves to allow the slag inside the bloom to flow. . The bloom was turned into a bar of iron during the refining process, which was then cut into small pieces and distributed between the *Mudda Kammari* who had participated in the smelt.

*“We sold the mudda to the Sahukar who had paid us some advance and also others, including the ryotlu. Each thattedu of mudda [local weight, conversion is unclear] was sold for 2 paise. We made adequate number of mudda so we were not bothered about a fixed price. Most of the times we agreed to what the Sahukar offered.”—Bodanna explained.*

### **7.2.3 Narratives of Chattapally Bhumaiah and Desiradi Bhumaiah**

Chattapally Bhumaiah (henceforth, C.B.) (Fig. 7.4) (**58 & 60**) and Desiradi Bhumaiah (**61**) (Fig. 7.3) (henceforth, D.B.) are 75 and 83 years old respectively. they are *mudda kammari* from the village of Battapally and Gopulapur in Karimnagar district. While D.B. participated in iron-smelting as an apprentice in his early teens, C.B. had only heard recollections of smelting from his father and his

*Mudda Kammari* colleagues. From their narratives it is evident that in comparison with Adilabad, the social and economic organisation of iron-smelting was different in northern Karimnagar. Below I will narrate the experience of D.B. who had more direct involvement with iron-smelting. I have used C.B.'s experiences with iron-smelting to fill-in the gaps in D.B.'s narrative.



*Figure 7.3 Desiradi Bhumaiah at his residence in Gopulapur, Karimnagar district. D.B. is the seniormost mudda kammari presently alive in the study area after the demise of Kuchanapally Bakkanna. (taken by the author)*

### **Ore collection**

*“My father used to make mudda with a few others in the village. The wuske was collected from Shekalla gutta [hill].” - Desiradi Bhumaiah said.*

Shekalla *gutta* is a small hill situated near the eponymous village located c. 6 km from Gopulapu. I asked D.B. more details about ore collection and D.B. explained further:

*“I did not go with them. Only 4 pedduru went to collect wuske. They collected it by digging the stream-bed, and then cleaned it in the flowing water of the stream. Clean wuske was then transported to the village on a bullock cart.”*

*“How much wuske did they collect each time”—I asked.*

*“To make mudda we needed 50 kg of wuske.”—D.B. replied.*

I asked D.B. what time of the year smelting took place. He said:

*“They went to the gutta in summer, after the rains, and again in winter, after the rains. They made mudda whenever it was needed, all throughout the year. Whenever it rained and wuske was available.”*

C.B. learnt about ore collection from his father who used to smelt in Battapally. He explained that *wuske* for smelting in Battapally was also collected from Shekalla *gutta*, 20 km away.

*“I know that the labourers used to dig black wuske from a stream near Shekalla gutta and brought it to my village in sacks by bullock cart.”*

*“By labourers you mean people from other communities?”—I asked.*



*“Yes, the harijan (untouchables) community. They also helped in making mudda.”*



*Figure 7.4 Chattlapally Bhumaiah and his wife at their residence in Battapally, Karimnagar district. (taken by the author)*

### **Charcoal making**

When I asked D.B. about the method for preparing charcoal, he looked offended.

*“How will I know? We did not make boggu. That was brought from Battapally and Velgonda [13 km from Gopulapur]. The Nayak made boggu with teak wood. They do not use water to douse the fire. Those boggu [which are*

*doused by water] are not good quality. They use sand to douse the fire instead, which is good for use in smelting.”*

The Nayak are a tribal community primarily residing in the Tribal Agency areas of Telangana and Andhra Pradesh. In the study area there is a large concentration of this tribe in the Agency tract of Adilabad district. Nayak groups also reside in the hill and forest tracts of Sarangapur in upper Karimnagar district, where some of them still follow their traditional livelihood as woodcutters and charcoal makers.

The involvement of the *Nayak* in supplying charcoal for smelting was also reiterated by C.B.

*“The Nayak made charcoal on the hills [near Battapally]. They are girijanalulu [tribal, but literal translation is “the hill people”]. They made boggu for my father and grandfather. My father bought 10 bags of boggu from the Nayak. 1 bag contained 5 kg and the costed Rs. 5. They needed 50 Kg of boggu per smelt.”*

C.B. said that he had heard about the process of making charcoal from his father.

*“They [the Nayaka] used to cut Sandra trees in the jungle up there on those hills [pointed towards a low forest covered hill a few kilometers away]. They made 10 bags of boggu each time. After cutting the wood, a heap was made and it was covered with sand and dry leaves. Fire was lit at the bottom of the heap. Later the fire was doused with sand. It took 24 hours to make one pile of boggu.”*



I asked C.B. if the *Nayaka* still lived in the hills adjacent to Battapally.

*“They are not there anymore. They don’t make charcoal now. Everyone gets boggu from the markets in Jagtial these days. Boggu is now made in factories. So no one needs the Nayaka.”*

### ***Bellows, the furnace and the organisation of production***

Consistent with the description of smelting in Adilabad, the *Mudda Kammari* of Gopulapur and Battapally used a pair of hand operated buffalo skin bellows. A single person operated the pair of bellows. The shift changed every half an hour. However, unlike Dasturbad, the bellows here were not operated by the *Mudda Kammari* themselves. D.B. explained this:

*“They [the elder smelters] used buffalo skin for pedda tittulu. The kolimi was 4 feet high. There were 2 tittulu. Each pair of tittulu was operated by one person with hand. They needed 8 people per smelt. 4 people worked with the bellows. They were from the Madiga community. Since we would not touch the bellows. Buffalo skin you see.”*

C.B. also mentioned the the practice of employing people from various fringed communities as labourers in smelting. According to him, 6 people actively participated in smelting at Battapally. However, only 2 of them were *mudda kammari*.

*“Two were needed for the bellows, two people for refilling the furnace with wuske and boggu, and two people for supervising the work. Normally the*

*last two were mudda kammari who directed the others about what to do. My father and grandfather played this role.”*

According to D.B., among the 8 individuals who participated in iron-smelting in Gopulapur, only 4 were *Mudda Kammari*. The others were either *Madiga* bellowsmen or members from other fringe communities

Unlike Dasturabad, only one furnace operated in Gopulapur and Battapally each during the final decade of smelting. These furnaces were typically 4-5 feet in height and were constructed by the *Mudda Kammari* themselves by excavating suitable fine clay from the *cheruvu* (village tank). Further details about the furnace construction process could not be obtained from either C.B. or D.B.

Like Dasturabad, the furnace chamber was filled with alternate layers of charcoal and iron ore. However, neither C.B. nor D.B. were able to describe the proportion of ore and charcoal.

The base of the furnace had one channel for the draft from the two bellows, which passed through a tuyere. Slag was let out through another channel opposite to the draft channel. There was a third channel, which was attached with a tuyere through which the fire was occasionally poked and inspection of the progress of smelting was made.

I enquired if new furnaces were required for each smelt.

*“No. Just change the pipe [tuyeres], do minor repairs and it is ready for the next lot.”* - D.B. explained.

### **Smelting and refining**

Like Dasturbad, smelting here took place overnight. D.B. explained what he remembered of the process:

*“The smelting started in the evening and finished by six in the morning. They [the elders] used to keep checking if the mudda is formed properly. They had a hole in the furnace to do that. This is the same place where they also poked the fire. It was all brightly lit in the dark. After the smelt, they brought the mudda out. It was still hot, so everyone hammered it to get rid of the chityam. Then they broke the mudda into two pieces with an iron karru [ploughshare].”*

*“Where was the refining done?”—I asked.*

*“They took the mudda out and placed it in a chinna kolimi beside the pedda kolimi. They hammered it repeatedly and then split it into two.”*

### **Selling the mudda**

Just as at Dasturbad, the *Sahukars* purchased the *mudda* from the smelters. However, according to D.B., unlike Dasturbad, the *Sahukars* paid the *Mudda Kammari* of Gopulapur in crops rather than cash. Also, unlike Dasturbad, the farmers did not purchase *mudda* directly from the *Mudda Kammari*. They normally purchased raw iron from the *Sahukars* during the weekly village markets. The reason behind this was unclear.

*"We gave all to the Sahukar. If farmers need iron they buy it from the Sahukar. They [the Sahukar] gave us crops in exchange of the mudda."* -

D.B. explained.

*"Did the Mudda Kammaris work as regular Kammari then? I mean did you forge agricultural tools for the farmers?"* - I asked.

*"Yes. I had 15 houses of ryotlu who came to me every year. They gave me 3 kuncha [approx. 18 kg] of paddy every year. Some gave me corn. Now 2 houses of Mudda Kammaris work for the farmers. Others took up carpentry. Many left because there is no smelting."*

I wanted to be certain about the fact that farmers bought raw iron from the *Sahukar* and not directly from the *Mudda Kammari*. D.B. repeated that:

*"The farmers went to the Sahukars to buy mudda and then brought them back to us to get them forged into agricultural implements."*

C.B., on the other hand gave contradictory information.

*"After that [the smelting] the ryotlu came to purchase the mudda for cash and carried them to their kammari to get them forged. The remaining mudda were sold to the Sahukars who in turn sold them in the markets."*

*"So the farmers did not come to the mudda kammaris for forging new implements?"*—I asked.

*"Why not? Those houses who were the clients of my parents and grandparents, they came to us. They got their implements forged with the*

*mudda they smelted and paid rice to them like they always do.*”—C.B. explained.

#### 7.2.4 Making *mudda* in a different method

During fieldwork, I came across two accounts of “making *mudda*” which were radically different from the traditional method of iron-smelting in Telangana, discussed above. First among these is a more detailed account obtained from the recollections of C.B., who observed his father and other *Mudda Kammari* make “*mudda*” in this alternative method after traditional iron-smelting had stopped. The second account comes from Immadi Muttyalu (32) of Ayispur (Habsipur). Although he described this as a “*mudda*-making” process, it actually appeared to be a secondary method in which bloom purchased from the market was refined. I describe both the processes below.

##### ***The Battapally process***

This process involved collecting small pieces of iron from the smithy and fusing these together in a single bloom-like lump or *mudda* in a furnace that was previously used for iron-smelting. C.B. describes the process.

*“I did not actually see the process of making mudda from wuske. But I saw my father and grandfather collect small pieces of mudda and melt them in a kolimi to make a large one-piece mudda from them. They did that very often here. One bag of boggu was needed to make 20-30 kgs of this kind of mudda. They collected whatever pieces of iron were left with them after their Kammaripani [blacksmithing] work. Then they put all of them together in the*

*kolimi and used two hand pressed tittulu to send the air and increase the heat to melt the iron together.*

*The kolimi was this tall [3-4 feet]. First they put a portion of the boggu in the bottom of the kolimi. Then they place the pieces of iron in an earthen pot and placed the pot over the boggu inside the kolimi. Finally, they added rest of the boggu on top of the pot and started the process. We watched in wonder because like honey and water cannot mix together, the boggu will always stay separate from the mudda. All those small pieces of iron were converted into one liquid form. They will then take the pot full of melted iron out and cool it and it will solidify into one mudda. This was magical to us in our childhood.”*

*“What about chityam?”—I asked.*

*“Chityam flowed out from the bottom in liquid form and then solidifies into those piles.”—Bhumaiah replied pointing at a medium sized slag heap.*

I asked him if a furnace was reused or they needed to break the furnace entirely to bring the pot of molten iron out. Bhumaiah said that one furnace could only be used twice. They made repairs after each “smelt”. C.B. said that this type of “smelting” only involved the *mudda kammari*. No labourers from other communities were required. After the *mudda* was made, it was sold to the middlemen, who, in turn sold it to the farmers in the village market.

C.B. explained that when iron-smelting was stopped because of the lack of access to the forests, the *Mudda Kammari* of Battapally found out the ways to continue

with their livelihood by “making *mudda*” in this alternative method. This required less labour and a comparatively small quantity of regular quality charcoal, easily obtained from the village market. *Sandra* wood for making charcoal had become inaccessible by then as the forest laws were strictly implemented by the government,

*“Both types of smelting happened here. The actual making mudda from wuske [bloomer process], and the one that I have just described. The large chityam are from actual type of smelting. They have recently removed these chityala [Pl. of chityam] for excavating a well.” - C.B. explained towards the end of our interview.*

### ***Ayispur (Habsipur) process***

Immadi Mutyalu (33) (Fig. 7.5), is a working *Kammari* and the son of Immadi Lachhanna (6.3.3), the retired swordsmith from Ayispur. He observed a secondary refining process of the *mudda* which regularly took place in Ayispur during his childhood. Muttyalu explained:

*“I have not seen or heard about smelting much. But I know that after they made the mudda, they refined it in a second kolimi. I have seen this work. They did that in this village. During this refining (process), the mudda were hammered into bars. Each bar weighed 15-20 kgs. This refining stage took place in Ayispur but not the first stage.”*





*Figure 7.5 Immadi Muttyalu at his workshop in Habsipur. In this picture he is drawing a sketch of the refining furnace while explaining its function to us. (taken by the author)*

*“Who brought mudda to Ayispur?” - I asked.*

*“The farmers brought them from those who smelted. I heard that some people made mudda in the village in the earlier part of the last century.*

*There are some chityam in the fields beside the Ellamma temple at the edge of this village.”*

I asked if he remembered this refining process. Below is what Muttyalu described about the process.

*“They used small furnaces. They mixed ash with the mudda and put that in the furnace. The furnace was about 2 feet high. There were four goatskin*



*tittulu operated by two people. 20 kg of mudda was refined in one hour by 10 people working on the furnace. Clay pipes were used to connect tittulu with the furnace.”*

“What kind of boggu did they use?”—I wanted to know

*“The farmers bought the boggu from the market. The usual kind. Teak wood. The farmers took the smiths to the market to have their estimate about size and quality of the mudda and boggu. Then they bought the recommended piece of iron. Then the cost of 50 Kg of iron was only 100 rupees. Now it is 5000 rupees or may be more.”—Muttyalu said.*

I asked Muttyalu if all the 10 people who worked on this refining process were *Kammari* from the village. Muttyalu said:

*“There are only three Kammari who actually did the refining. The others are helpers hired from the village. They helped in adding boggu in the furnace with, hammering the mudda when needed and pressed the tittulu. They were given toddy in return for their help.”*

Muttyalu said that after *mudda* were refined and forged into bars of iron, the farmers ordered the agricultural implements to be forged out of them. The *Kammari* did not receive additional pay for the refining process. The farmers paid them in kind at the end of the agricultural cycle based on traditional prestation agreement prevalent in the village. I asked Muttyalu what the reasons were behind the stoppage in this practice of refining *mudda*. Muttyalu said:

*“Mudda is not available in the market anymore. We use lorry springs to forge karlu and other implements for the farmers. When mudda stopped coming to the market, this stopped too.”*

### 7.3 Discussion: Technology

The primary focus of this study is the social context of iron production in northern Telangana. Therefore, detailed technological discussion on iron-smelting is beyond the scope of this work. Here I present some preliminary observations.

From the narratives above on traditional iron-smelting in Adilabad and northern Karimnagar it is evident that the technology employed by the *mudda kammari* in these two regions were similar. Rich sandy sediments of weathered magnetite (*wuske*) were exploited from the seasonal streambeds in the foothills during the monsoon. Timber from *sandra*, *korishe* and *tiruwan* were gathered from the forest to make charcoal. Ore and charcoal were transported from their sources to the *Mudda Kammari* settlements where smelting took place. Based on the interactions with the *Mudda Kammari*, the furnace descriptions and the smelting process are found to be similar in the Dasturabad region and in northern part of Karimnagar district.

However, there is a significant difference in the post-smelting treatment of the bloom between Dasturabad and north Karimnagar. In the narratives above of smelting in Dasturabad, Bakkanna, Bodanna and Rajaram stated that the *mudda* was dragged out of the smelting furnace, halved and then each of the halves was continuously hammered on an anvil near a refining hearth to turn it into *lappa* or

bars. This method squeezed the maximum amount of remaining slag out of the *mudda*.

The primary refining process described by C.B. and D.B. is different than the one in Dasturabad. In Battapally and Gopulapur, the *mudda* was repeatedly hammered using a refining hearth and then halved. The process of forging the *mudda* into a bar (*lappa*) was not followed here

Immadi Muttyalu's description of a secondary refining process of the *mudda* is a crucial piece of information. I have not come across this information from any other elder *Kammari* during three seasons of fieldwork. It is possible that this secondary refining process far removed from the actual smelting context was very localized. Similarly, it is also possible that this secondary refining process was more widely prevalent, but has passed beyond the living memory of the *Kammari*.

Muttyalu's description of the common prevalence of this secondary refining process matches with Francis Buchanan's description of iron-smelting in Magadi, a historic town in south Karnataka situated 60 km west from the centre of modern Bangalore (800 km south of Jagtial). Like the study area, iron was smelted from magnetite sand in Magadi (Buchanan, 1807). Buchanan observed that after smelting, the bloom was halved and each half was then divided into three wedges. The wedges were then placed in a refining 'furnace' where they were heated with bamboo charcoal and then repeatedly hammered to squeeze out the slag. Despite this prolonged refining process, the blacksmiths who bought the wedges still

needed to “*heat and beat the iron three or four times before it is fit for making the implements of husbandry*” (1807:vol. I-120).

#### **7.4 Discussion: Specialization parameters**

Costin (1991:9) presented four parameters to evaluate the nature of craft-specialization in ethnographic, archaeological and ethno-historical records (Chapter 5). I will apply these parameters here to understand the nature of specialization in iron-smelting in northern Telangana.

Following Costin’s (1991:8) typological scheme, iron-smelting in the study area can be categorised under ‘*Community Specialization*’ with some adjustments in the definition. Iron was produced by a specialist community of iron-smelters, who, on most occasions, lived near the sources of iron-ore and charcoal. Middlemen purchased iron from the smelters and sold it in regional markets for general consumption.

##### **7.4.1 Context: the level of official control on production and consumption**

It is not clear from the ethnographic narratives presented how much control the state exercised on the production and consumption of iron. From Bodanna and Rajaram’s narrative it is clear that the forest officers under the Nizam’s government exerted a certain amount of control over the exploitation of timber for making charcoal. The *mudda kammari* had to negotiate a fee with the local forest officers before they were permitted to enter the forest for making charcoal. Buchanan mentions that the forests in each *Taluk* (or district) of southern Karnataka were

*Table 7.1 Types of revenues and duties paid by the iron-smelters in three regions of southern Karnataka (reconstructed from Buchanan 1807:vol.I)*

<b>AUTHORITY</b>	<b>Ghettipura (in <i>Fanams</i>)</b>	<b>Magadi (in <i>Fanams</i>)</b>	<b>Chinnarayanad urga (in <i>Fanams</i><sup>7</sup>)</b>
<b>The Keeper of the Forest for permission to make charcoal</b>	200	60	100
<b>The <i>Gauda</i> or the village headman for leave to gather iron sand</b>	NA	NA	40
<b>The <i>Gauda</i> for the rent of each furnace</b>	10	20	15
<b>The <i>Sunca</i> or the collector of customs</b>	NA	NA	30
<b>The <i>Gauda</i> for rent of smelter's (living) huts</b>	54	20	NA

leased out to an individual by the government. The office of this individual was known as *Gyddā Cavila*, who exclusively controlled all the forest resources, except sandalwood trees, within each district. The *Gyddā Cavila* acquired this right from the government against the promise of payment of annual revenue to the government. Anyone exploiting the forest resources required the permission of the *Gyddā Cavila* and had to negotiate a duty that the former had to pay (Buchanan, 1807:vol. I-271). Table 7.1 gives the annual duties that the iron-smelters were required to pay to the *Gyddā Cavila* for permission to make charcoal in three

<sup>7</sup> Re. 1= 12 *Fanams*

regions of southern Karnataka. It is evident that the permissions for making charcoal were comparatively more expensive than other forms of revenues for the smelters. Since Hyderabad Residency Records and the Nizam's State Archives could not be accessed during this research, it is not possible to see if a similar kind of control

over forest resources prevailed in Telangana in the early 19<sup>th</sup> century, when pre-industrial iron-smelting was widely practiced in the area. An official Forestry Department was established in the Hyderabad State in 1867, following the forest conservation model implemented in the rest of contemporary British ruled India. The Hyderabad State Forest Acts of 1890, 1900 (Act II), 1917 (Act I) and 1946 (Act II) increased the government's hold over the forest resources and significantly curbed the rights of village communities over exploitation of forest resources (Thaha, 2009:36-50). Thaha suggests that it was only in 1923, that the Hyderabad State Forest Department started issuing permits to the peasants and the tribal communities, permitting them to access firewood and fodders. However, the quantity of these forest products that the village communities could exploit was closely regulated. The use of the forest products thus extracted were also closely monitored, and non-domestic use was not permitted (2009:45).

However, direct state control over iron production in peninsular India was probably negligible before the implementation of Colonial Forest Conservation policies. The mobility and the rights of the iron-smelters and other village communities over the surrounding forest areas were not strictly monitored and regulated by the state or its officials. The Early 19<sup>th</sup> century accounts by Buchanan in south Karnataka

suggest that in most instances official involvement in iron-smelting was indirect, and was limited to the collection of a fixed revenue from each operational furnace. He provided a list of annual revenues that smelters were required to pay for permissions and rents (Buchanan, 1807:I-122; 306). Table 7.1 is a reproduction of this list for Magadi, Ghettipura and Chinnarayanadurga in southern Karnataka.

The only instance in which Buchanan recorded a direct official involvement in iron-smelting and crucible steelmaking relates to Magadi. The Mysore Sultanate under Tipu Sultan (1782-1799) directly purchased iron and steel produced in Magadi to manufacture arms and ammunitions for his arsenal. In order to ensure an uninterrupted supply during this period of intermittent warfare against the Nizam and the English East India Company, it was necessary to maintain official control on the steel production at Magadi (Buchanan, 1807:I-121).

#### **7.4.2 Concentration: spatial distribution of production units & economic network**

The distribution of *mudda kammari* communities within the landscape of the study area is uneven for several environmental reasons, which serve as necessary pre-conditions for iron-smelting. The *mudda kammari* communities are therefore concentrated in proximity with the forest tracts of Adilabad and semi-forested terrains of northern Karimnagar where *wuske* and *boggu* were easily available. This spatial nucleation and comparative isolation of the *mudda kammari* communities imply the presence of an established regional exchange network that connected the *mudda kammari* to the local and regional markets, where the iron

they produced was made available for wider consumption. The narratives above attest the presence of this exchange network.

However, the exchange network the *mudda kammari* of Dasturabad participated in during the final half century of iron-smelting was significantly different from the one C.B., D.B. and their predecessors participated in in northern Karimnagar. For Dasturabad, the smelters were directly involved in each and every aspect of the smelting process. The *mudda kammari* of all the neighbouring villages worked together in collecting ore, preparing charcoal, making the furnace, and finally, smelting and refining iron. Therefore the smelters of Dasturabad did not require the services of any fringe communities to work as hired labourers in iron-smelting. The only non-*mudda kammari* community who indirectly contributed to the smelting process are the *Madiga*, who supplied the buffalo hide bellows for smelting and refining. Since these bellows needed frequent replacements, the *mudda kammari* and the *Madiga* must have had a close and regular economic exchange relationship. After the *lappa* was forged out of the fresh smelted iron, parts of it were sold to the *Sahukar* and other itinerant merchants, who transported it to several local and regional markets. The farmers, for whom the *mudda kammari* forged agricultural implements according to the traditional prestation relations practiced in the region, purchased the remainder of the *lappa*. Both the merchants and the farmers were required to purchase portions of the *lappa* against cash payment. The farmers paid the *mudda kammari* a traditionally-determined amount of crop annually in return for the latter's services in forging and repairing agricultural implements for them. It has to be recognized that smelting and refining



of the *mudda* was treated as a separate process with distinct terms of exchange, than forging the *lappa* into agricultural tools. Even when both of these processes were carried out by the same group of craft producers, smelting and refining was outside the village prestation system, and required cash transactions, whereas forging for the farmers was directed by the rules of traditional prestation system and entailed a payment in kind. None of the elder *mudda kammari* in Dastuarbad was able to recollect the nature of payment made to the *Madiga* bellow-makers.

On the other hand, the *mudda kammari* groups in northern Karimnagar were involved in a more complex network of exchange. First, unlike their Dasturabad counterparts, the *mudda kammari* of Karimnagar depended on the *Nayak* community for the supply of charcoal. Unlike Adilabad, the forest tracts of Karimnagar are more dispersed due to dense population and extensive agricultural activity. The comparatively lower concentration of *mudda kammari* population in this area, at least in the final half century of iron-smelting, meant that they lacked adequate labour resources to traverse long distances to access these forest tracts for charcoal. Also, the forests of Karimnagar district, along with those of Warangal and Mahbhubnagar, were declared Protected Forests as early as 1894 and placed under the direct control of the fledgling Forest Department of the Hyderabad State. This curbed the rights of the *mudda kammari* and other village communities in the exploitation of forest resources. Only certain tribal communities retained their rights to cut wood for making charcoal and provide firewood for cooking (Thaha, 2009:37). Therefore, they had to depend on the *Nayak*, who retained their rights to

exploit the forest resources, for the supply of charcoal. The *Nayak* were paid in cash in exchange for charcoal.

Connected to this is a second fundamental difference that characterises the exchange relations of the *mudda kammari* in northern Karimnagar. Unlike Dasturabad, iron-smelting in this part of the study area was organised by small groups of *Mudda Kammari* at individual village levels. Therefore, adequate labour from the *Mudda Kammari* community was not available for the various functions in the smelting process. The *mudda kammari* here needed to hire members of other fringe village communities like the *Madiga* as labourers to help in smelting. Under the supervision of the senior *mudda kammari*, the labourers constructed and repaired furnaces, collected and cleaned the *wuske*, added charges of charcoal and ore during the smelting process and worked as bellowsmen. The *mudda kammari* gave them toddy and probably a share of their crops and some cash in exchange of their labour.

Hiring labourers was a common practice among the groups of smelters when iron-smelting was widely practiced in the early 19<sup>th</sup> century South India. In Buchanan's journals master-smelters or "proprietors" of furnaces feature quite frequently. In Magadi for example, he mentions that labourers worked under the supervision of a master-smelter to perform different tasks related to iron-smelting.

"During the four months of heavy rains, four men are able to collect as much sand [ore] as a furnace can smelt in the remainder of the year... Three men get ten *fanams* or 6s. 8 ½d. a month and the nature of the service is similar

to that of the farmers' servants, being bound by occasional advances of money to continue in the employment of the master. During the remaining eight months of the year, they work [i.e. they smelt iron] at the forge."

(Buchanan, 1807:vol. I-118)

Buchanan provided a detailed list of expenses incurred by the master-smelter to pay different types of labourers he had hired (Table 7.2). However, as mentioned earlier, iron-smelters at Magadi were one of the principal suppliers of iron for the arsenal of the Mysore sultanate. Therefore the production here operated on an industrial scale, which probably required employment of a labour force to increase the efficiency of production over a long period. Buchanan also records a similar practice of hiring labourers and paying them in cash at Mota Betta near Hampi, in the Tungabhadra valley of Karnataka (700 km south of Jagtial). Here, iron-smelting was also directly regulated and controlled by the Mysore sultanate, who paid an allowance to the smelters to meet the expenses of smelting iron. Buchanan reported a high intensity of iron production at Mota Betta where the furnaces were operational for 320 days in a year (Buchanan, 1807:vol. I-389-390). The economic and social relations of production in comparatively smaller units were probably radically different.

*Table 7.2 Buchanan's record of the labour charges paid by the master smelter at Magadi (Compiled from Buchanan, 1807:I-121)*

<i>Categories of labourers</i>	<i>No. of labourers</i>	<i>Payment per labourer/month (in Fanams)</i>
<b><i>For collecting iron-sand (for 4 months)</i></b>	4	10
<b><i>Charcoal making (for 8 months)</i></b>	6	8
<b><i>Helpers at the smelting hut (for 8 months)</i></b>	4	8
<b><i>Refining hearth (for 8 months)</i></b>	2	8
<b><i>Labourers at smelting hut (for 8 months)</i></b>	4	10

In Chinnarayanadurga, 100 km north of Bangalore for example, iron was smelted on a comparatively smaller scale. Here, three furnaces were employed for smelting which produced 33 'wedges' of iron per day. Apart from the *Panchala*, the Karnataka equivalent of *Kammari*, 21 other people involved in smelting were most likely from the local smelting community and part of the same kin-group. From Buchanan's account it is evident that the group of iron-smelters at Chinnarayanadurga did not hire labourers from other communities. They collected the ore and prepared charcoal by themselves and divided the produced iron-

wedges among themselves after every four days of smelt (Buchanan, 1807:vol. I-306).

Table 7.3 is a reproduction of Buchanan's list of how refined the iron-'wedges' (like *lappa* in northern Telangana) were divided among the smelters. A clear hierarchy among the smelters can be discerned from the list. Since this practice is similar to the one prevalent in Dasturabad in the early 1900s, it can also provide some valuable insights about the dynamics of power relations and hierarchies operational in iron-smelting among the *Mudda Kammari* of the study area.

Back to our ethnographic evidence in Karimnagar, the final point of difference in the exchange network between here and Dasturabad comes from the fact that the *mudda kammari* of Karimnagar did not sell the wedges of the refined *mudda* directly to the farmers. Even those farmers, who were bound into a prestation relation with the *mudda kammari* purchased iron from the village or other regional markets.

The refined mudda-wedges were sold to the middlemen and itinerant merchants for cash, or sometimes, grain. The middlemen then resold some of the wedges to the farmers in the weekly village markets. The farmers brought the wedges back to the *mudda kammari* and the *kammari*, who forged and repaired agricultural implements and received an annual payment of a traditionally determined amount of grain from the former.

*Table 7.3 Division of the smelted iron wedges among the smelters in Chinnarayanadurga of southern Karnataka (Compiled from Buchanan, 1807:I-306)*

<i>Categories of work</i>	<i>No. of workers</i>	<i>Pieces of iron-wedges per worker in each category</i>
<b><i>The Proprietor (or master smelter)</i></b>	<b><i>1</i></b>	<b><i>35</i></b>
<b><i>The Panchala (blacksmith) supervisor at the refining furnace</i></b>	<b><i>1</i></b>	<b><i>10</i></b>
<b><i>The overall supervisor at the smelting furnaces</i></b>	<b><i>1</i></b>	<b><i>8</i></b>
<b><i>The bellowsman who removes (taps) the slag</i></b>	<b><i>1</i></b>	<b><i>5</i></b>
<b><i>Women who wash the iron sand</i></b>	<b><i>2</i></b>	<b><i>5</i></b>
<b><i>Remaining smelters</i></b>	<b><i>16</i></b>	<b><i>4</i></b>
<b><i>TOTAL</i></b>	<b><i>22</i></b>	<b><i>67</i></b>

Although the *Mudda Kammari* are placed lower than the traditional *Kammari* in the social hierarchy of rural Telangana, they participate in an exchange network that is more widespread than that of the *Kammari*. Like the *Kammari*, the members of the *Mudda Kammari* community also forged and repaired agricultural implements for a set number of farmer families, following the norms of the traditional prestation

relationship. However, their clientele often extended beyond the boundaries of their villages of residence. Serving clients outside one's village remains strictly prohibited for the *Kammari* community. However, apart from the traditional clientele served through the village prestation network, the *Mudda Kammari* also forged implements for the *Gond* and the other tribal groups involved in agriculture. The *Gond* and other tribal groups were considered to be at margins of Hindu social order in the region. The *Kammari*, who command comparatively higher prestige than the *Mudda Kammari* in rural society in northern Telangana, therefore refuse to forge for the tribal farmers. The tribes, who normally reside in their distinct villages therefore, seek the services of the *Mudda Kammari*, a community also marginalised to a degree by the local social system. Many of these pre-existing exchange relations with the *Gond* community still survive. In Dasturabad, for example, the *Mudda Kammari* still make agricultural implements for a sizeable number of farmers from the neighbouring *Gond* settlements. In Rechapally of Karimnagar district, Kalluri Ramesh and Kalluri Sanjeev (57) still serve a number of *Gond* families with whom their predecessors had a long-standing relationship. In their words:

*"We make implement for the farmers in the village as well as Gond farmers who live in the neighbouring villages but do not have a blacksmith in their village. We also repair [their tools] when needed."* (Appendix 1:57)

### 7.4.3 Scale: size of production unit

Scale in craft production pertains to the size of the production unit and the principle of labour recruitment in each production unit (Costin, 1991:15). Two discrete types of production units are discernible in the study area from the narratives. These two types of production unit also followed discrete principles for labour recruitment, which in turn, dictated the nature of hierarchy and the economic relations of production.

Due to the spatial nucleation of the *Mudda Kammari* community since the early 20<sup>th</sup> century, iron-smelting in Dasturabad was conducted in a centralised kin-based production unit where the *Mudda Kammari* families from the neighbouring areas directly participated in smelting. This centralised production unit, which operated in Dasturabad village only employed the members of the *Mudda Kammari* community from Dasturabad and the neighbouring areas. Everyone who participated in smelting in Dasturabad were therefore connected with each other through kinship relations. Male teenagers from these families were included in the team of smelters as apprentices so that they could learn on the job from the more experienced *Mudda Kammari*. Apart from the narratives of the *Mudda Kammari* now residing in these villages, the close kinship ties between various *Mudda Kammari* families in the region is evident from their genealogies, which were painstakingly compiled with the help of the members of 13 *Mudda Kammari* families in the study area. All of the 310 individuals recorded in the kinship diagrams were found to be related to each other. These individuals belong to one of four generations and are spread



across an area of c. 200 km radius. The relationship between each of these 310 individual *Mudda Kammari* who feature in the 15 kinship charts can be defined by the conventionally accepted kinship terms. The charts drawn in the field and a brief analysis of each is presented in Appendix 3.

From the accounts of Bakkanna, Bodanna and Rajaram the existence of a clear power hierarchy among the smelters of Dasturabad can be discerned. The master-smelter was a highly-experienced, senior *Mudda Kammari* who was in-charge of supervising the entire smelting process. The smelters were divided into small groups. Each group was assigned a distinct task such as collection of *wuske*, preparation of *boggu*, and furnace construction prior to the actual smelt. Each group was composed of a few young apprentices who worked under the supervision of experienced *Mudda Kammari* to accomplish these tasks. In order to ensure that each apprentice is trained in every aspect of iron-smelting, different tasks were assigned to them prior to each smelt. During the smelt, the master-smelter and other senior *Mudda Kammari* supervised the work and inspected the progress of smelting in both furnaces that were operated simultaneously in Dasturabad. The younger *Mudda Kammari*, along with the teenaged apprentices, pumped the bellows and fed charcoal and ore in to the furnaces following the instruction of the *peddoru* (the master-smelter and other senior smelters) (40).

The iron-smelting units in northern Karimnagar, however, required the employment of wage-labourers who were not the members of the *Mudda Kammari* community. According to Costin's hypothesis (1991:15-16), employment of additional workforce, not related by kinship is an indicator of a larger production unit with

greater output. Although this is valid for a craft at the peak of its working life, the hypothesis cannot be applied to a craft in decline. Iron-smelting in northern Karimnagar in the first half of the 20<sup>th</sup> century is a prime example of this. In northern Karimnagar, recruitment of extra-community wage-labourers in iron-smelting was necessitated by two factors: Firstly, dispersed spatial distribution of the *Mudda Kammari* communities in the areas; and secondly, the distance between these dispersed *Mudda Kammari* settlements and the sources of iron-ore and charcoal.

It is evident from the recollections of C.B. and D.B. above (7.2.2), unlike Dasturabad, the *Mudda Kammari* community in northern Karimnagar was more widely distributed in the landscape in the early 20<sup>th</sup> century. The nucleation process observed in Dasturabad owing to a decline in production, did not take place in this area. Therefore, several villages in northern Karimnagar contained only 2-3 *Mudda Kammari* families who organised iron-smelting in their own respective villages. Further, forest areas in Karimnagar are more dispersed than in Adilabad. In addition, a majority of the forest area of Karimnagar was declared protected forests by the Nizam's government in the 1890s. Only certain tribal communities retained rights to exploit the forest resources in the protected areas. Long distances needed to be traversed to access and exploit the resources from the non-protected forest areas in the district. Therefore, the available labour from within the *Mudda Kammari* community in each village was not adequate to perform each component of the operational sequence of iron production. This necessitated hiring wage-labourers from other marginalised or tribal communities who were placed lower in

the local social hierarchy than the *Mudda Kammari*. Therefore, although the traditional iron production units in early 20<sup>th</sup> century northern Karimnagar were smaller, with comparatively less output to **that in** Dasturabad, the *Mudda Kammari* here required to hire additional extra-community labourers to ensure the survival of their craft.

However, the size of the production units and the logic of labour recruitment might have been radically different when pre-industrial iron-smelting was more widespread in the study area. Although there is no information regarding this period available for northern Telangana, observations made by Buchanan (1807:Vol. I, II, III) and Heyne (1814) during their travels in peninsular India can provide interesting insights regarding this.

Tables 7.2 and 7.3, compiled from Buchanan, indicate the organisation of production at two different scales in southern Karnataka. Table 7.2 elaborates the economic relations of production in Magadi, a large production unit supplying raw materials to the arsenal of the Mysore Sultanate in the second half of 18<sup>th</sup> century. The demand for iron was high from the state, which was constantly at war with the English East India Company and their Indian allies. This large production unit, with high output, therefore required more labourers with a clear division of duties. The additional labourers were often hired for a fixed wage from outside the smelter community.

The situation was different in Chinnarayanadurga (Table 7.3). The output of this production unit was comparatively low. The production was probably targeted to

meet the demands of the local market. The requirement for labour was less and could be supplied from within the smelting community. The form of payment was also informal, as the smelters divided the iron they produced among themselves rather than paying a fixed wage in cash.

Heyne also observed these two distinct processes near Rajamundhry and Ramanakkapeta in the Northern Circars, or present day coastal Andhra Pradesh. A small community of iron-smelters lived in the village of Lechempuram near Rajamundhry. He mentions that there was great demand for the iron produced here in local markets. However, only one furnace was operational during the summer, and a small group of 8 to 9 smelters collectively participated in each task related to smelting (Heyne, 1814:218).

In contrast, at Ramanakkapeta, near Nuzivid, also in modern coastal Andhra Pradesh, iron was smelted on an industrial scale. Heyne records the presence of 40 furnaces in the village, which operated throughout the year in the late 18<sup>th</sup> and early 19<sup>th</sup> century (1814:224). He further records that despite the proximity of Ramanakkapeta to the source of iron-ore and charcoal, the iron-smelters here were not involved in the ore collection and the charcoal preparation process.

“Iron mines lie on the north, a mile from the village, and half a mile from the hills. The ore is brought in baskets to the furnaces which are close to the village. The smelters here are a distinct set of people from the miners; neither do they prepare their own charcoal. They purchase both articles: the ore baskets from the mines; the charcoal from the labourers, who bring it

from the hills. The charcoal which they employ is obtained from mimosa sandra [same as mod. *Acacia Catechu*] of Roxburgh, which grows, I am told, in abundance on the nearest hills.” (Heyne, 1814:225)

Although Heyne did not elaborate on the nature of the financial transactions in both of the above contexts, it is evident that the size of the production unit and the scale of output determined the logic of labour recruitment in pre-industrial iron-smelting in peninsular India. Consistent with Costin’s (1991:15-16) hypothesis of scale, it is observed from Heyne and Buchanan’s accounts that a larger production unit required a formal division of tasks and the employment of extra-community wage-labourers. On the other hand kin-based informal labour relations, and distribution of the iron product among the smelters characterize small production units, with limited output. However, this straightforward hypothesis cannot adequately explain the scale of production in northern Telangana during the phase of decline in iron-smelting in northern Telangana.

#### **7.4.4 Intensity**

According to Costin (1991:16) intensity of engagement of a craft community in production is normally determined by the time spent by the producers in the production process. This simple definition presents a problem in categorizing iron-smelting in the study area during its period of decline. Since iron-smelting depended heavily on the monsoon, the peak operation-period for smelting was between July and September every year. Therefore, the *Mudda Kammari* were fully engaged in smelting for only a quarter of the year, while alternating between smelting (when ore was available with fresh shower), smithing and agriculture the

rest of the year. But this does not make it a part-time specialization for the following reasons:

Firstly, iron-smelting required highly specialized skills and long term experience, which the *Mudda Kammari* had acquired over many generations. The craft of iron-smelting was an integral part of their community identity and regulated their position in the social and physical space of the study area.

Secondly, iron-smelting was operated on a full time basis during these three months when environmental conditions allowed full-fledged production of iron. Even during its phase of decline, this three-month window engaged all the *Mudda Kammari* in intense iron-production and distribution.

Finally, and crucially, the *Mudda Kammari* memory of iron-smelting only goes back to the first half of the 20<sup>th</sup> century, when it was already in decline. This memory therefore, cannot reflect the intensity of production of the smelting units when they operated at their optimum levels during and before the mid-19<sup>th</sup> century.

Taking important hints from the observations of Buchanan and Heyne, and using the variations in the size of slag deposits in the archaeometallurgical landscape of northern Telangana (Fig 7.6), it can be argued that different types of smelting units were operational in the region before the decline started. The scale and intensity of production varied between different production units in



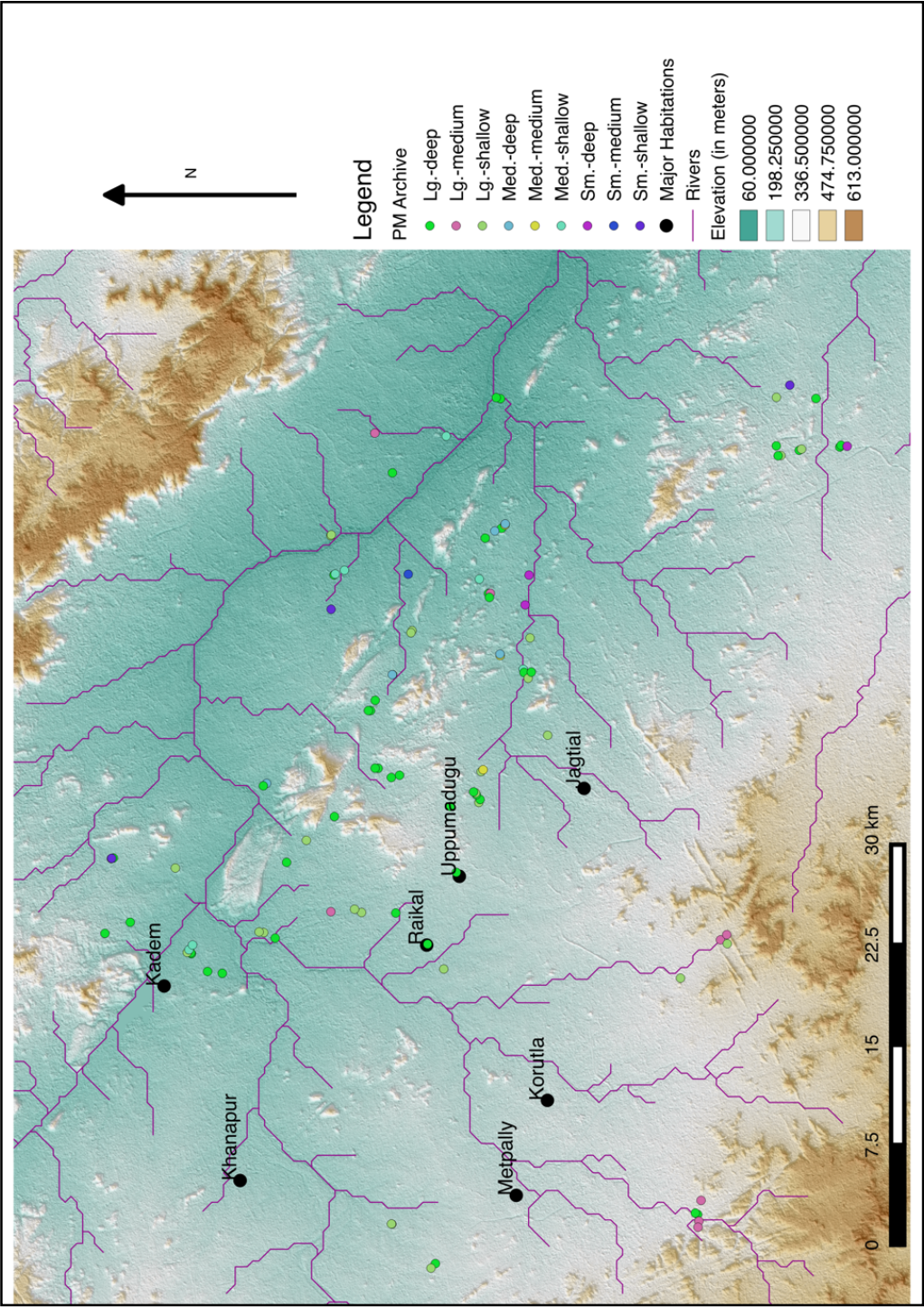


Figure 7.6 Map showing the distribution of iron-smelting sites in the study area of the Pioneering Metallurgy project according to the size of deposit. (Map work by T. Neogi)

the region. The smaller kin-based units probably operated seasonally, on a part-time basis, and catered for local consumption. For the rest of the year, the *Mudda Kammari* may have participated in the village prestation relations working as blacksmiths and as agricultural labourers. Whereas, the larger production units operated throughout the year, participating in regional trade networks. These larger units, with greater output, probably needed to hire extra-community wage-labourers to perform tasks related to smelting. However, this will remain an hypothesis until more corroborative evidence is found through further research.

### **7.5 Surviving the decline in iron-smelting**

The *Mudda Kammari* narratives above (7.2) and the analysis of different parameters of specialization derive from a period of sharp decline in iron-smelting. Living memories of the individual *Mudda Kammari* and collective memory of the entire community do not generally extend beyond the early 1900s, and therefore are only capable in illuminating the world of iron-smelting in the study area during its phase of decline.

The ethnographic data from the final phase of iron-smelting in the study area presents an opportunity to study the social and economic organisation of a craft in decline. The *Mudda Kammari* narratives provide us with important insights about the different survival strategies adopted by the smelters of the Dasturabad area to sustain themselves, their community and the craft through this period. My discussion of these strategies below is likely to throw up analytical models, which can be employed by archaeologists and anthropologists to discern social and economic organisation of production of traditional crafts during a period of decline.



### 7.5.1 The Adilabad strategy

The archaeometallurgical record of iron-smelting of the study area suggests that *Mudda Kammari* communities were more widely dispersed throughout the landscape of northern Telangana in more the past (7.2.3). In contrast, the narratives obtained from the senior smelters, especially in the Kadem forest area of Adilabad, indicates that iron-smelting was nucleated around Dasturabad in the first half of the 20<sup>th</sup> century.

#### ***Migration to Dasturabad***

Bakkanna's narrative (7.2.1) indicates that his family was part of this nucleation process when his grandfather migrated to Dasturabad from Khanapur. He also mentioned that in his childhood he had seen several *Mudda Kammari* families from other villages come and settle in and around Dasturabad. I heard similar narratives of migration into Dasturabad or neighbouring villages from a number of other *Mudda Kammari* families during the course of my fieldwork (FN). Although the narratives of migration among the iron-working communities in the study area, and all over South India are common (see Brouwer, 1995 for similar narratives among blacksmiths in Karnataka), the historical context of each migration must be taken into account while interpreting them. Unlike many other narratives of migration, the reasons and the historical context of *Mudda Kammari* migration in the study area can still be accessed through the living memory which makes it important to study.

This pronounced migration of the *Mudda Kammari* groups during the decline in iron-smelting is also attested in the archaeological record. No *Mudda Kammari*

families were found currently living in many of the villages where archaeological evidence of pre-industrial iron-smelting was identified during the *Pioneering Metallurgy* survey. *Kammari* families who presently reside in many of these villages have migrated into and settled in them in the first half of 20<sup>th</sup> century, possibly after the *Mudda Kammari* had left. These *Kammari* families therefore, do not possess knowledge or memory of iron-smelting. During my fieldwork I found this process more common in the Kadem forest area of Adilabad. The *Kammari* community in Chityal (25) is a case in point.

Chityal is a village situated 12km away from Dasturabad as the crow flies. The village derived its name from the presence of large slag heaps (*chityalu*=pl. of *chityam*, meaning slag), attesting the existence of a thriving pre-industrial iron-smelting centre in the region. However, no *Mudda Kammari* families were found in the village during the survey. During subsequent fieldwork for the present project I met Medavaram Swamy and Medavaram Ravi (25), two brothers who work as the village *Kammari* in Chityal. In their formal interview, they said that their grandfather had migrated from Shekalla in Karimnagar to Chityal.

*“As I said, we are not from here. We are from Shekalla in Karimnagar district. So we do not know what you are talking about.”*

Their grandfather chose to settle in Chityal because there were no blacksmiths in the village. Both Swamy and Ravi did not have any knowledge of iron-smelting and indicated that those who created the *chityalapenta* (slag heaps) had left the village before their grandfather had arrived. Since Swamy and Ravi are almost 40 years

old, the arrival of their grandfather at Chityal could approximately be placed during Bakkanna's childhood, or early youth, a time when the *Mudda Kammari* migrations were taking place.

### ***Why Dasturabad?***

While iron-smelting had probably ceased for several reasons in a large part of Adilabad by the early 20<sup>th</sup> century, the surrounding forests and the seasonal streams coming down from the low hills around Dasturabad still supplied the area with ample resources to sustain traditional iron-smelting. Therefore, Dasturabad and its neighbouring villages must have attracted the displaced *Mudda Kammari* families from other places in Adilabad. The existence of kinship ties between the *Mudda Kammari* families in the study area may explain the unidirectional flow of migration towards Dasturabad. Parthasarathi's (2001) study of the traditional weavers of South India showed that the artisans of the region had a tendency to exploit their kinship ties to migrate through the landscape at the time of scarcity. He showed that the weaver and other artisan families often migrated to those villages where they had members of their extended kin group. This provided them an easier access to the economic network of the village and made the relocation less traumatic and uncertain (2001). Strong kinship ties with Dasturabad, therefore, may have played a major role in deciding the course of migration for the *Mudda Kammari* families in the early 20<sup>th</sup> century.

### ***Pressure on resources***

This significant demographic shift in Dasturabad area during the first half of the 20<sup>th</sup> century probably created pressure on the resources providing for the iron-smelting industry. If the *Mudda Kammari* communities in each village of this area individually organised iron-smelting, it would have increased pressure on the forest and ore resources. This pressure would have depleted the available natural resources crucial for the survival of iron-smelting.

Organizing iron-smelting in every village in the Dasturabad area would also have suddenly increased the competition among the smelting groups. Apart from competition over natural resources, the *Mudda Kammari* groups of different villages would compete to sell their products to the middlemen. While such competition was healthy during the heyday of pre-industrial iron-smelting, it would have exponentially increased the process of decline in the early 20<sup>th</sup> century. The market demand for *Mudda Kammari* iron had ebbed in this period owing to the influx of industrial iron from England as well as the establishment of modern iron and steel industries in India. Therefore, an increase in output from *Mudda Kammari* furnaces in the Dasturabad area in this period would have driven down the price of *mudda* considerably, resulting in loss for each production unit. Also an increase in production disproportionate to the market demand had the potential to decrease the bargaining power of the *Mudda Kammari* by empowering the middlemen even more to purchase the iron at whatever prices they wanted to pay.

## **Strategies**

Kinship played a major cohesive role in order to neutralise the pressure on the resources crucial for iron-smelting. The *Mudda Kammari* of the Dasturabad area strategized the use of these resources so that iron-smelting can sustain a large number of *Mudda Kammari* families during the period of decline. The narratives from Dasturabad (7.2.1 & 7.2.2) suggest that iron-smelting was organised only in Dasturabad, where the migrating *Mudda Kammari* families who settled in the neighbouring areas were allowed to actively participate. The organisation of production at a community level across village boundaries meant that available resources could be exploited more efficiently, and without competition. It also ensured a regular supply of labour to prepare charcoal, collect ore and assist in smelting and refining processes from within the community. Recruitment of wage-labour from other communities was not required. Labour relations were therefore informal and kin-based. Collective production also helped in maintaining equilibrium between the output and the market demand for blooms. The unity also enabled the *Mudda Kammari* to have more bargaining power when dealing with the local authorities to acquire charcoal preparation rights as well as argue for a status quo, if not a better price for iron with the *Sahukar*.

### **7.5.2 The Northern Karimnagar strategy**

The *Mudda Kammari* groups residing in the villages in northern Karimnagar did not adopt a similar strategy. The lived experiences of D.B. and C.B. (7.2.3) indicate that *Mudda Kammari* in this region continued smelting in small and isolated

individual village-based groups rather than uniting to optimise the use of raw materials and market resources. Although the exact reason behind this is unknown, it can be assumed that the population movements in Karimnagar was more closely regulated by the Nizam's administration. Karimnagar was well integrated within the Nizam's dominion, with a highly productive agrarian base. Therefore, it is possible that the mobility of the artisan groups like the *Mudda Kammari* and *Kammari*, who were intimately connected to agrarian production, was more closely administered. Adilabad, on the other hand contained dispersed pockets of mainly tribal habitations interspersed with dense forests, and therefore, were not as well integrated or administered as Karimnagar.

## 7.6 Concluding remarks

In this chapter I have attempted to reconstruct the pre-industrial iron-smelting technology of the study area through several ethnographic narratives obtained from elderly iron-smelters. The following chapter will survey the nature and the spatial distribution of the archaeometallurgical record of iron-smelting in northern Telangana. I will then situate the *Mudda Kammari* community in the social and physical space of the study area. An attempt will be made to discern the evolving nature of relationship between the spread of archaeological record and the location of the *Mudda Kammari* community in the physical space.

## CHAPTER 8

### IRON-SMELTING AND IRON-SMELTERS IN THE PHYSICAL SPACE OF NORTHERN TELANGANA

#### 8.1 Introduction

The objective of this chapter is to trace the iron-smelting and iron-smelter relationship as it played out in physical space in Northern Telangana. I will approach this by describing the location of a number of iron-smelting sites in the study area. Using the archaeological record and ethnographic data gathered during this research, this chapter seeks to identify and interpret the pattern of spatial distribution of the smelting sites. This will be achieved by first situating the archaeometallurgical record of iron-smelting in the landscape of northern Telangana. The classifications of these sites primarily consisting of slag or crucible heaps, are made following the method adopted by the *Pioneering Metallurgy* project based on the extent and intensity of the deposit of the metallurgical debris (Juleff and Girbal, *pers. comm.*).

In order to identify patterns in distribution of the archaeometallurgical remains of pre-industrial iron-working, the entire study area is here divided into two zones: the forested and hilly terrain of southern Adilabad, and the well settled areas of northern Karimnagar. The Godavari river forms a natural boundary between these two zones. Apart from topography, there is a significant difference between the way iron-smelting was organised in these distinct zones.

## 8.2 The archaeometallurgical record of iron-smelting in northern Telangana

Surveying the archaeometallurgical evidences for iron-smelting and crucible steelmaking was not the primary focus of the present research. Therefore, I have primarily relied on the data recorded during the *Pioneering Metallurgy* survey of 2010 for the present analysis. In the course of my fieldwork for the current project, I have recorded a few slag heaps and *wuske* sourcing locations inside the Kawal Tiger Reserve, with the help of elder *mudda kammari* and tribal forest trackers. This additional data has also been incorporated here, and classified according to the classification methods used for the *Pioneering Metallurgy* project data, in order to maintain uniformity.

The characterisation of the iron-smelting sites is approached in two ways. In the first section, the sites are classified according to the extent and depth of the deposits (Girbal, *pers. comm*) (Fig 8.1). In the next section, I will analyse the spatial location of a selected number of better preserved sites in relation to the proximity of the source of *wuske*. In both these analysis, ethnographic evidence from the study area will play a major role, and is expected to provide an interpretative framework to understand the nature and distribution of the data in northern Telangana.

### 8.2.1 Classification of archaeometallurgical data based on extent and depth

#### ***Definition of 'Site'***

The record of iron-working has been divided into nine categories according to the extent and depth of the deposits in a site (Fig. 8.1). The extent and depth in this



case, are qualitative measurements and not actual measurements of these sites. A site, in this case, typically consists of a single location, or a group of locations with similar type of materials, situated not farther than 150 meters from each other (Girbal, pers. comm.). The Pioneering Metallurgy survey recorded different types of sites, including metallurgical sites consisting of slag and crucible heaps. It also included 'historical' sites, including such features as temples, fortifications and other old structural remains, and 'geological' sites, such as possible ore sources, quarries and crushing pits. These data were recorded as date-locations and then clustered into sites during later analysis (Juleff et al., 2014). However, for the current analysis, I have only used the data on the metallurgical sites identified during the Pioneering Metallurgy survey, in addition to other distinct metallurgical sites identified during my fieldwork for the current project. Since I did not find enough ethnographic data on crucible steel production, the archaeological data of crucible steel making in the area has not been discussed in this work.

Going by the above definition of the sites, a metallurgical site can consist of one slag or crucible heap or, a cluster of heaps, situated very close to each other.

Normally, each site is considered to be the signature of sequential episodes of iron-smelting. Here I argue that the presence of more than one site within a small area, therefore, probably indicates distinct episodes of iron-smelting, most likely to be temporally separated from each other. This issue will be taken up for further discussion in the following section.

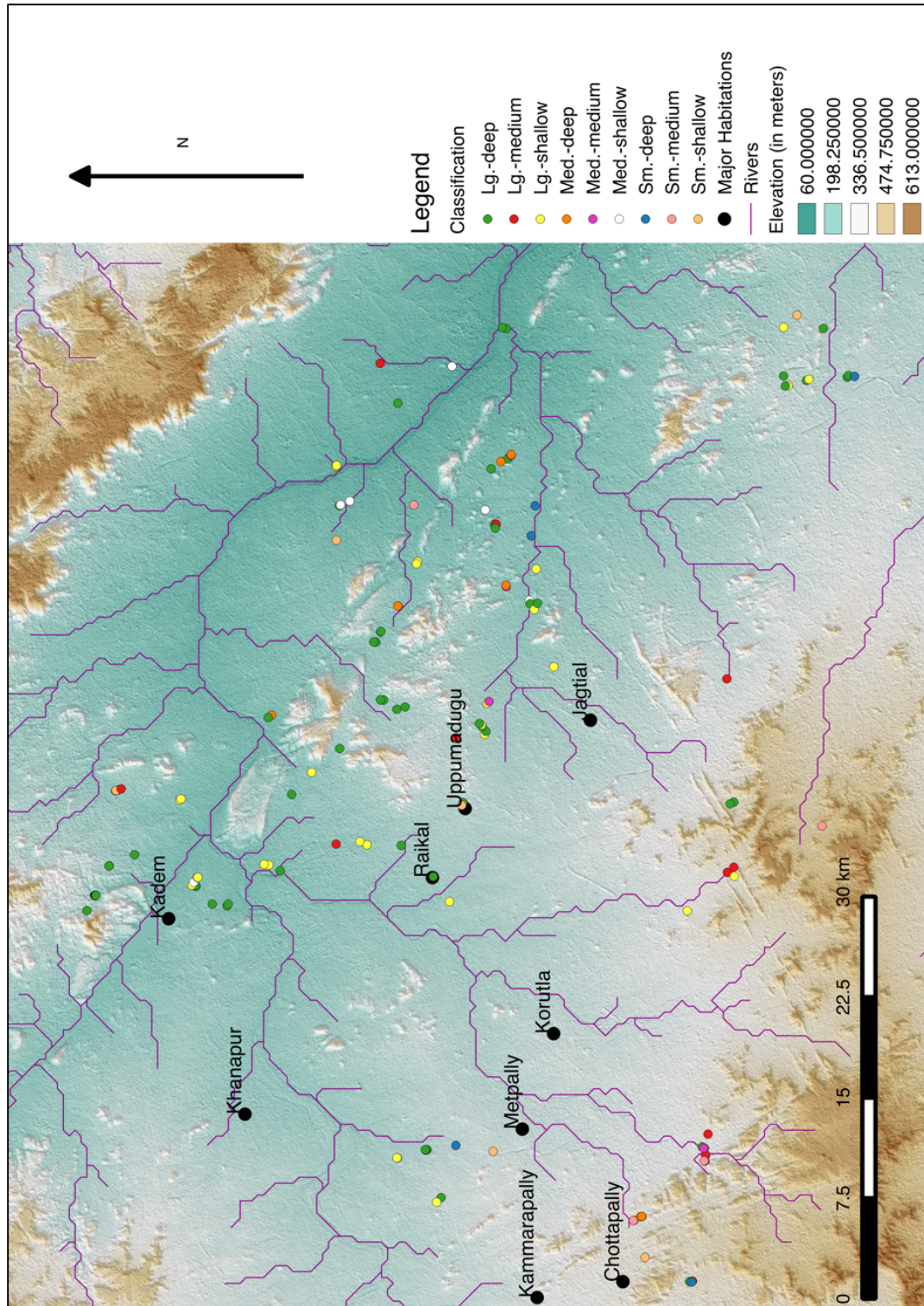


Figure 8.1 Showing the distribution of metallurgical remains of iron-smelting in the study area based on the depth and extent of the deposits (Map work by T. Neogi)

*Table 8.1 Showing the parameters of categorization of the iron-smelting sites in the study area (Source: Juleff and Girbal, pers. comm)*

Category	Parameters	
	Extent (in square meters)	Depth (in meters)
<b>Large-deep</b>	>100	>0.5
<b>Large-medium</b>	>100	0.1- 0.5
<b>Large-shallow</b>	>100	<0.1
<b>Medium-deep</b>	25-100	>0.5
<b>Medium-medium</b>	25-100	0.1 – 0.5
<b>Medium-shallow</b>	25-100	<0.1
<b>Small-deep</b>	<25	>0.5
<b>Small-medium</b>	<25	0.1 – 0.5
<b>Small-shallow</b>	<25	<0.1



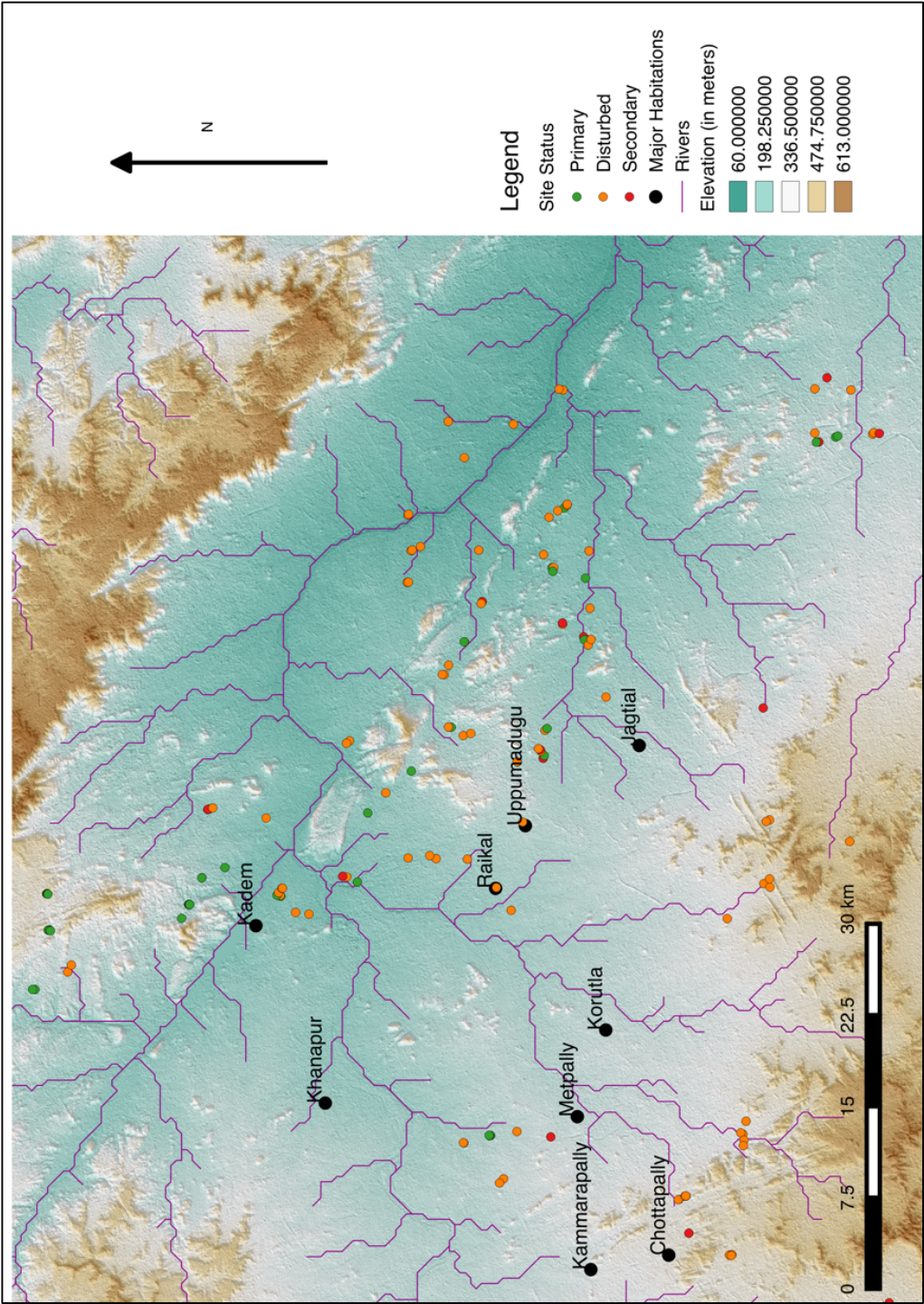


Figure 8.2 Showing the status of the iron-smelting sites in the study area (Map work by T. Neogi)

### ***Classification and site status***

Among the 132 iron-smelting sites, only 29 sites (21.97%) can be considered undisturbed, primary deposits. A majority of these 29 sites are located within the forest tract of the Kawal Tiger Reserve in Adilabad, and in the Sarangapur Reserved Forest in Karimnagar (Fig 8.2). Their comparative isolation from modern settlements and government restrictions on entering the forest, has contributed to the preservation of these sites.

The remaining sites are either disturbed or secondary deposits of slag, quarried from erstwhile slag heaps. These sites are often *in situ*, but they are not well preserved. They are frequently located within, or close to current settlements,

agricultural fields, and roads, and the encroaching rural and urban development has affected the preservation of these sites.

Slags make excellent binding material for construction of the mud huts, common in the Telangana villages (Fig 8.3). This

practice can be traced back to at least the medieval period. The surviving mud-brick bastions and fortifications dotting the



*Figure 8.3 Slag used as binding material in this medieval mud-brick bastion at Nerella. The slag has been quarried from a nearby heap. (Source: Pioneering Metallurgy Archive)*

landscape of northern Telangana bear evidences of using slag as binding materials for these constructions. However, it is important to note that the *mudda kammari* houses that I have come across during the fieldwork, did not incorporate slag as building material. This is may be because the *mudda kammari* consider slag to be

the excreta of the smelting furnace, and therefore impure and unfit for using in the house construction. As will be there is a clear correlation between the location of iron-smelting in physical space, and the position of the *mudda kammari* in the social space in northern Telangana.

Slag is also frequently now quarried by road constructors and used to make the foundations of tarred roads in the region. Apart from this, slag heaps are often quarried away partially, or in full, by cultivators, as the ashy soil underneath the



*Figure 8.4 A sprawling mango plantation over a flattened slag heap in Godegondem. (taken by the author)*

heaps are considered to provide important nutrients for crops like cotton, turmeric and trees like mango (**FN**) (Fig 8.4). Therefore, the depth and the extent of the sites cannot be, in many cases, directly related to the intensity of the past iron production. The better preserved forest sites can

provide an indication of the scale and intensity of production of iron-smelting.



### 8.2.2 Spatial distribution of the sites

It is clear from the ethnographic interactions with the *mudda kammari* community, that for iron-smelting to take place, there is one basic requirement: the adequate supply of *wuske*. As discussed earlier (see 7.2.1), seasonal streams coming down from the low hills of this area were exploited to collect iron rich magnetite sand sediments, or *wuske* for iron-smelting. Since *wuske* is heavier than normal sand, it was not desirable or easy to transport this over longer distances, through uneven, and forested terrain. Therefore, the *mudda kammari* normally smelted iron in places within easy access to these streams. The spatial distribution of iron-smelting sites in the study area is therefore, heavily influenced by the location of these streams. The abundance of these streams depends on the topography of the region. In Adilabad, the presence of a continuous range of low hills skirting the north-east of the Kawal Tiger Reserve (Fig 8.5), contributed to the presence of a number of seasonal streams criss-crossing the forest, bringing down rich magnetite sediments from the hills. A majority of the iron-smelting sites are located in this region, and as I will discuss later, are clustered around these seasonal streams in the Kawal Tiger Reserve. It is also important to note that a majority of the *mudda kammari* families I met during my fieldwork, still live in this area. As I will show later, the *mudda kammari* genealogies collected during fieldwork also

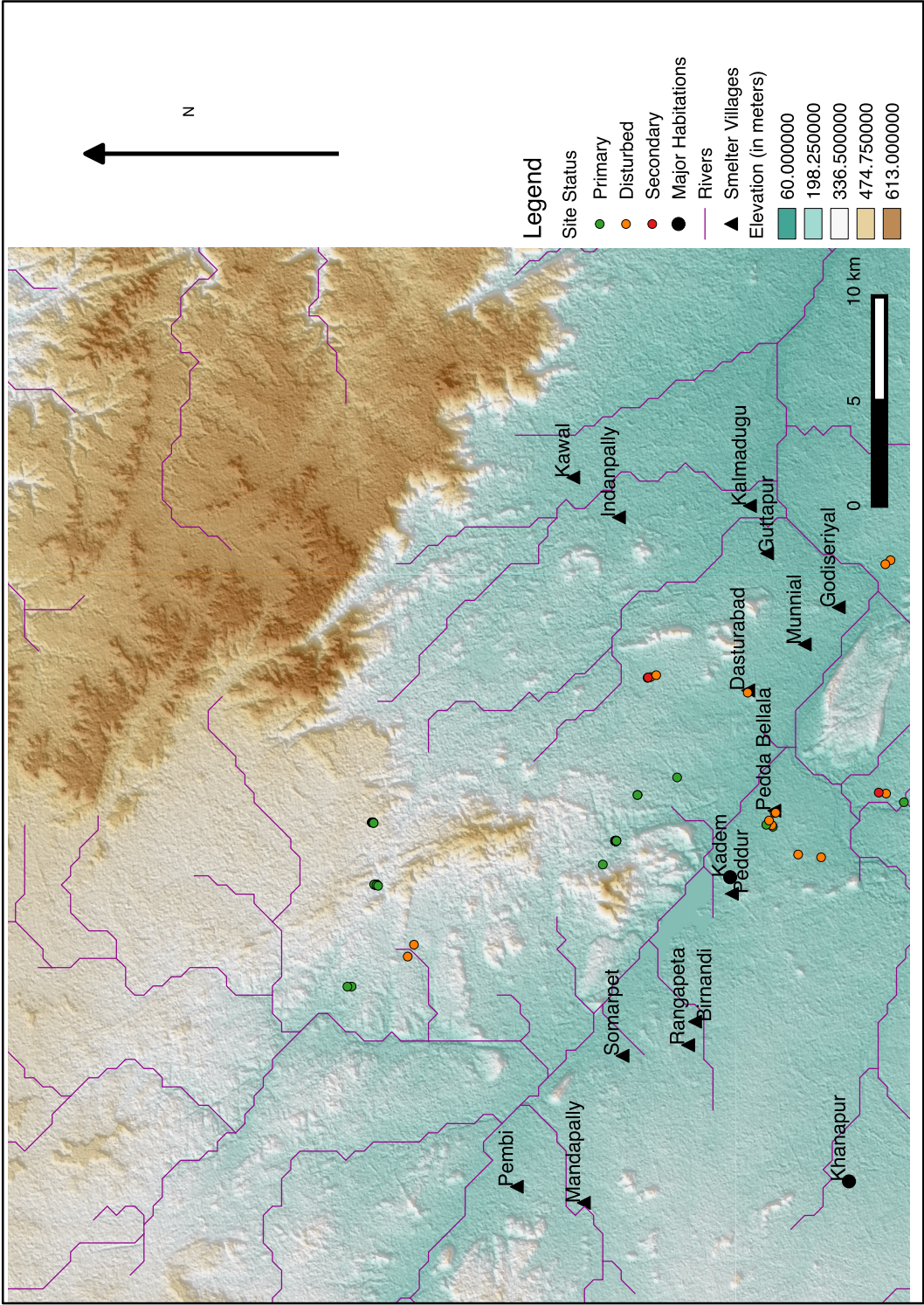


Figure 8.5 Distribution of iron-smelting sites in the Kawal Tiger Reserve of Adilabad. There are many more sites inside the forest, access to which was not permitted by the forest authorities. (Map work by T. Neogi)



connect them to the villages which are situated close to the evidence for iron-smelting in northern Telangana.

The topography of northern Karimnagar, on the other hand, constitutes of low hills dispersed throughout the landscape (Fig 8.6). Therefore, the iron-smelting sites in this area are clustered around these low hills, which explains a wider distribution of the iron-smelting sites across the landscape. In different villages in northern Karimnagar, primary or partially disturbed slag heaps are often found to be located near village tanks. The iron-smelting sites in this region are either found close to the seasonal streams, or the adjacent to the tanks in the village horizons, where the *mudda kammari* may have exploited the sediment under the incoming water of the old irrigation canals to collect *wuske* (Heyne. 1814).

As I have already discussed (see 3.2.4), these canals were dug to supply rainwater for irrigation in remote villages, from the reservoirs, situated in the foot of the hills. The reservoirs collected rainwater coming down the hills in torrents, rich in magnetite sand, during the monsoon. When this water was distributed through the irrigation canals to the village tanks, it carried a some amount of *wuske* with it, providing a source of iron ore for the *mudda kammari* in this region. However, with the construction of a new canal system since the Indian independence, a large number of these old irrigation canals have silted up due to lack of maintenance. Currently, many of these dry canals are filled in and used as village paths, and were very difficult to distinguish from the normal dirt path in the villages of Telangana.

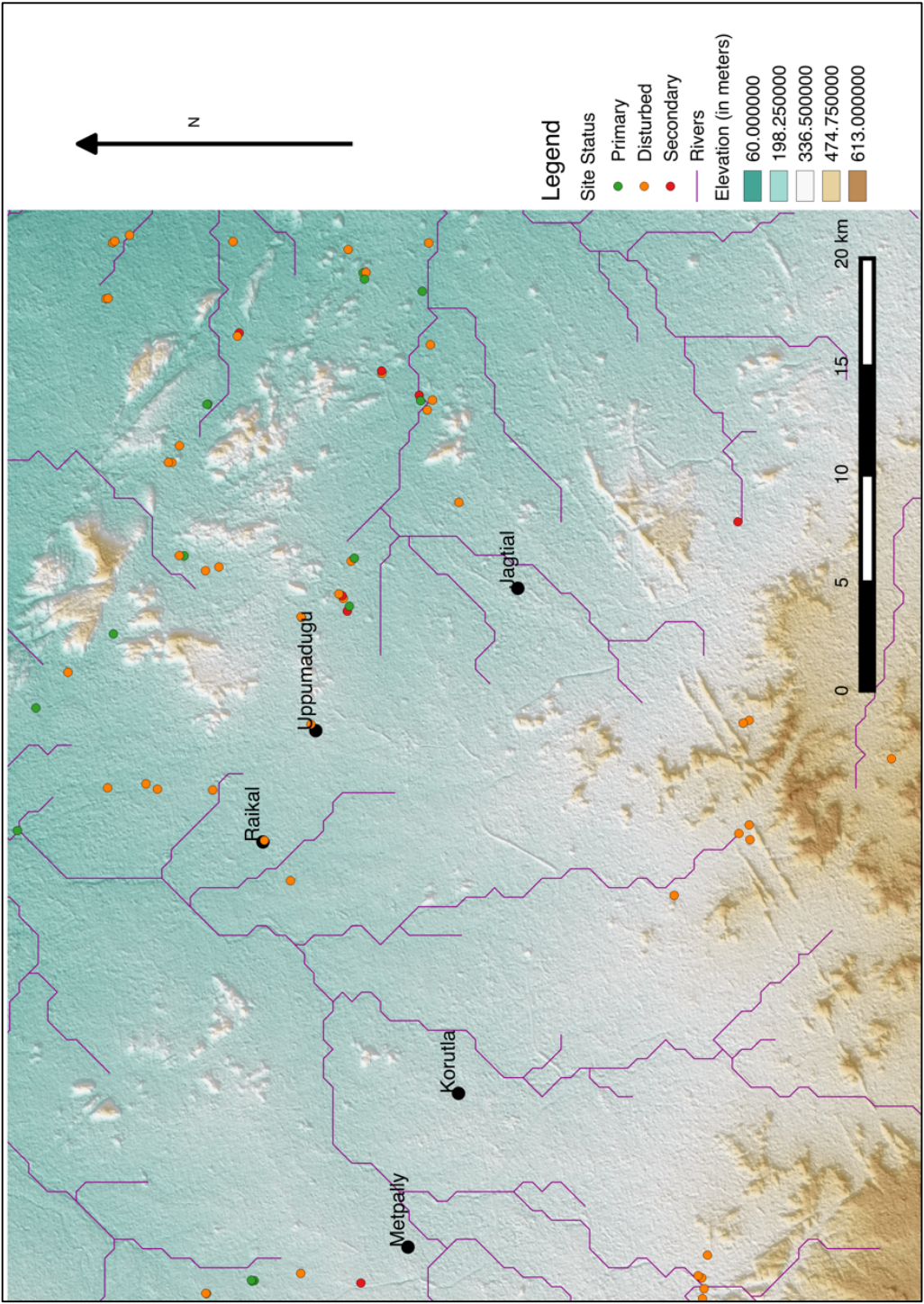


Figure 8.6 Distribution of iron-smelting sites in northern part of Karimnagar district (Map work by T. Neogi)

During the fieldwork, I have partially explored some of the old canals in Karimnagar and the seasonal streams in the forest of Adilabad on foot, with the help of *mudda kammari* interlocutors. The full course of the canals and the streams were later traced on Google Earth after completion of fieldwork. Below, I will discuss the spatial location of some of the iron-smelting sites identified by *Pioneering Metallurgy* project and the present research in order to elucidate the point above.

### 8.2.3 Spatial layout of iron-smelting sites in the Kawal Tiger Reserve

#### ***Smelting sites in Gangapur Forest***

Gangapur forest forms a part of the Kawal Tiger Reserve. It has acquired this name from Gangapur, a hamlet situated in the middle of this forest. Two iron-smelting sites were identified in this forest during the *Pioneering Metallurgy* project. During my fieldwork for this research I identified two more iron-smelting sites. However, it must be noted here that these sites were located on the side of the untarred road that bisects the forest and connects Gangapur village with State Highway 24, the only major road link passing through the forest. Both in 2010 and in 2013-14, the local forest authorities denied permission to explore further inside the forest. The elder *mudda kammari* residing in this area spoke of more slag heaps deep inside the forests (FN). Their accounts are corroborated by the forest trackers employed by the local authorities, who have regular access to the forests to track the movement of the animals and police poaching activities.

The four iron-smelting sites identified in Gangapur forest (Fig 8.6) are all large-deep, relatively undisturbed archaeological evidence. Each site comprises of a

cluster of slag heaps, with visible inclusions of tuyeres, furnace wall and other refractory material. This might indicate a continuous period of smelting activity, before the location was abandoned, probably because the suitable timber for charcoal was exhausted. Since the elder *mudda kammari* in this area can only recall iron-smelting in and around the village of Dasturabad, and not in places within the forest, these forest smelting sites probably operated before the forest regulations came into force in the 1890s. However, lack of more information and prohibition on collecting samples prevents any accurate dating of these sites.

What is important for the present discussion is the spatial location of these sites.

The satellite image (Fig. 8.7) clearly indicates that each of the four sites in Gangapur forest is located adjacent to a seasonal stream (Fig 8.8). These streams flow south from a range of low hills with rich banded magnetite outcrops towards the north-east. The smelting sites are situated on comparatively flat land where the flow of the stream allows the deposition of these heavy magnetite sand (*wuske*).

The *mudda kammari*, exploited these rich deposits of magnetite sand in these spots and carried out iron-smelting in the forest adjacent to these streams. Many of these streams now remain dry throughout the monsoon as the water is diverted into one of two major irrigation canals constructed to feed the Kadem Reservoir. This is true for the majority of these seasonal streams in the area, and could be one of the reasons behind the decline in iron-smelting after Indian Independence.





Figure 8.7 Map showing the iron-smelting sites (in red) in Gangapur forest. The blue lines are the seasonal streams identified in 2013-2014 (Map work by T. Neogi)





*Figure 8.8 Dry bed of a seasonal stream in Gangapur forest. (taken by the author)*

As Rudroju Bhimalingam (19), a senior mudda kammari from Mallyala-Muttyampeta in Karimnagar put it:

“the *wuske* stopped coming... The streams dried up and there was no more *wuske* in the stream which was good enough to smelt.”

### ***Abandoned smelter village in Ellampally forest***

Ellampally is a small hamlet located within the Kawal Tiger Reserve, about 10km northwest of the iron-smelting sites in Gangapur forest. The forest surrounding the hamlet is commonly called by the same name. Ellampally is a comparatively new

village, established 40 years ago in a small valley surrounded by dense forest and low hills. The forest in the valley was cleared to make way for cultivation. There are no *mudda kammari* families in the village; the only *kammari* family had recently migrated from Karimnagar and owns a small multi-purpose store at the village-centre. The requirements for agricultural implements are met by a *shisha kammari* family who reside by the side of the road in a shack near the primary school.



*Figure 8.9 E2, the site of numerous large slag heaps in the Ellampally forest (taken by the author)*

Like Gangapur, the untarred road to Ellampally passes through dense forest, interspersed with seasonal streams. Access into the forest here was also prohibited by the authorities. Two undisturbed clusters of slag heaps (E1 & E2) were identified on the side of the road (Fig. 8.8 & 8.9). Two smelting locations were also identified within the village (E3 & E4); however, these were heavily disturbed as the land was recently cleared for agriculture. All of these four sites, including those within the village, are situated adjacent to seasonal streams (Fig 8.10), which were partially explored on foot with the help of the villagers till the point these enter the dense forest. The full course of these streams depicted in Figure 8.10 were then traced on the satellite map of the area with the help of Google Earth.

Speaking to the villagers in Ellampally those who go into the forest on a regular basis to bring firewood stated that there is an abandoned village within the forest



with many *chityalapenta* (lit. “hills of slag”) in and around it. As we enquired more about this abandoned village it turned out that the locals believed that the erstwhile inhabitants of this abandoned village were *peddoru* (elders), who were *mantrikudu* (magicians), and who turned *railu* (stone) into *inummu* (iron). However, there was no knowledge about when and why the village was abandoned. It was certainly before Ellampally village was founded, and therefore there is no living memory of it. In the early 1980s, an area near this abandoned village was the location of a tragic massacre, when the Maoist insurgents murdered 20 innocent villagers in, mistaking them for government informers. Because of this, apart from the forest trackers, forest officials and woodcutters, this place is generally avoided by the villagers of Ellampally.



Figure 8.10 A semi-dry seasonal stream flowing beside E2 inside the Ellampally forest. (taken by the author)

It became apparent in the course of this conversation that the abandoned village is key evidence of the production and habitation context of pre-industrial iron-smelting in the area. Although from the ethnographic interactions it is evident that smelters were frequently on the move, it is highly likely that there will be several other abandoned smelter settlements within the forest. However, knowledge of these may not have survived due to restrictions on entering and venturing deep into the forests. This made an exploration of the abandoned smelter village near Ellampally essential and we started exploring the options for accessing it. We did not want to break any rules, even though several firewood collectors offered to take us there for a high fee.

Finally, we were introduced to a forest tracker, Budhu (pseudonym), residing on the outskirts of Ellampally. We were able to secure oral permission for entering the forest to see the abandoned village and the slag heaps from the local forest office with his help. The officer instructed Budhu to lead us to the abandoned village but we were not allowed to collect any samples or stay in the forest for more than one hour.

Since the time was limited, the survey of this abandoned habitation could not be comprehensive. Nonetheless, important features were noted, and GPS waypoints of the locations of slag heaps, surviving structures, streams and tanks were recorded (Fig. 8.12).

Figure 8.12 illustrates the spatial distribution of slag heaps, tanks, seasonal streams, and the locations where evidence of a settlement was identified. E5 and

E7 are clusters of slag heaps, with the remains of refractory materials spread over more than 100m<sup>2</sup> area. E6 (Fig. 8.13) is a comparatively smaller heap covering an area of approximately 40m<sup>2</sup>. All of these clusters were undisturbed at the time of our survey, and the depth of the deposit was greater than 0.5m. Therefore, following the parameters for classification of iron and crucible steel production sites used by the *Pioneering Metallurgy Survey* (Table 8.1), E5 and E7 can be classified as Large-Deep sites, whereas E6 can be categorised as Medium-Deep site. I have treated E5, E6 and E7 as individual sites since each represents an independent smelting episode. These smelting episodes may have been contemporary or chronologically separated from each other. The likelihood of the latter is endorsed by my interactions with the local *mudda kammari* community (see 7.2.1 & 7.2.2). If several sites are identified close to each other within a forest landscape, then it seems probable, based on the ethnographic evidence from the study area, that each site might have been signatures of temporally distinct episodes of iron-smelting. It is possible that after the resources for making charcoal were exhausted in one area, the *mudda kammari* moved to a different part of the forest, only returning after several years having allowed the trees to grow back. More intensive study is required in order to understand this method. However, this type of exploitation of charcoal in a shifting method is not unique in northern Telangana. During a brief pilot survey with the *Asur* iron-smelters in Netarhat in the spring of 2013, the elder iron-smelters told me about a similar strategy they adopted to collect teak-wood charcoal.



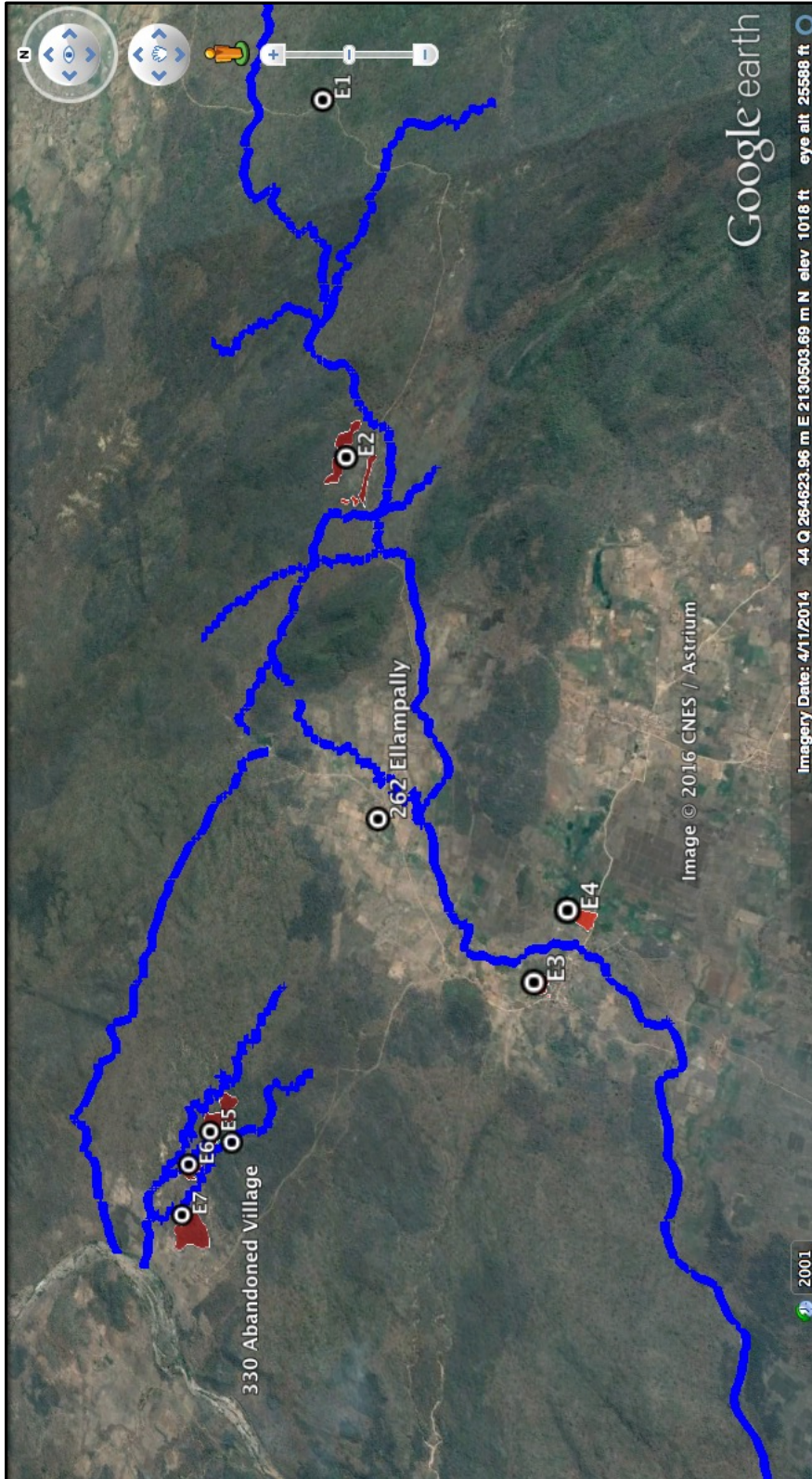


Figure 8.11 Map showing the location of Ellampally and the abandoned smelter village. The red shades are locations of slag heaps, and the blue lines are seasonal streams passing through the forest. (Map work by T. Neogi)



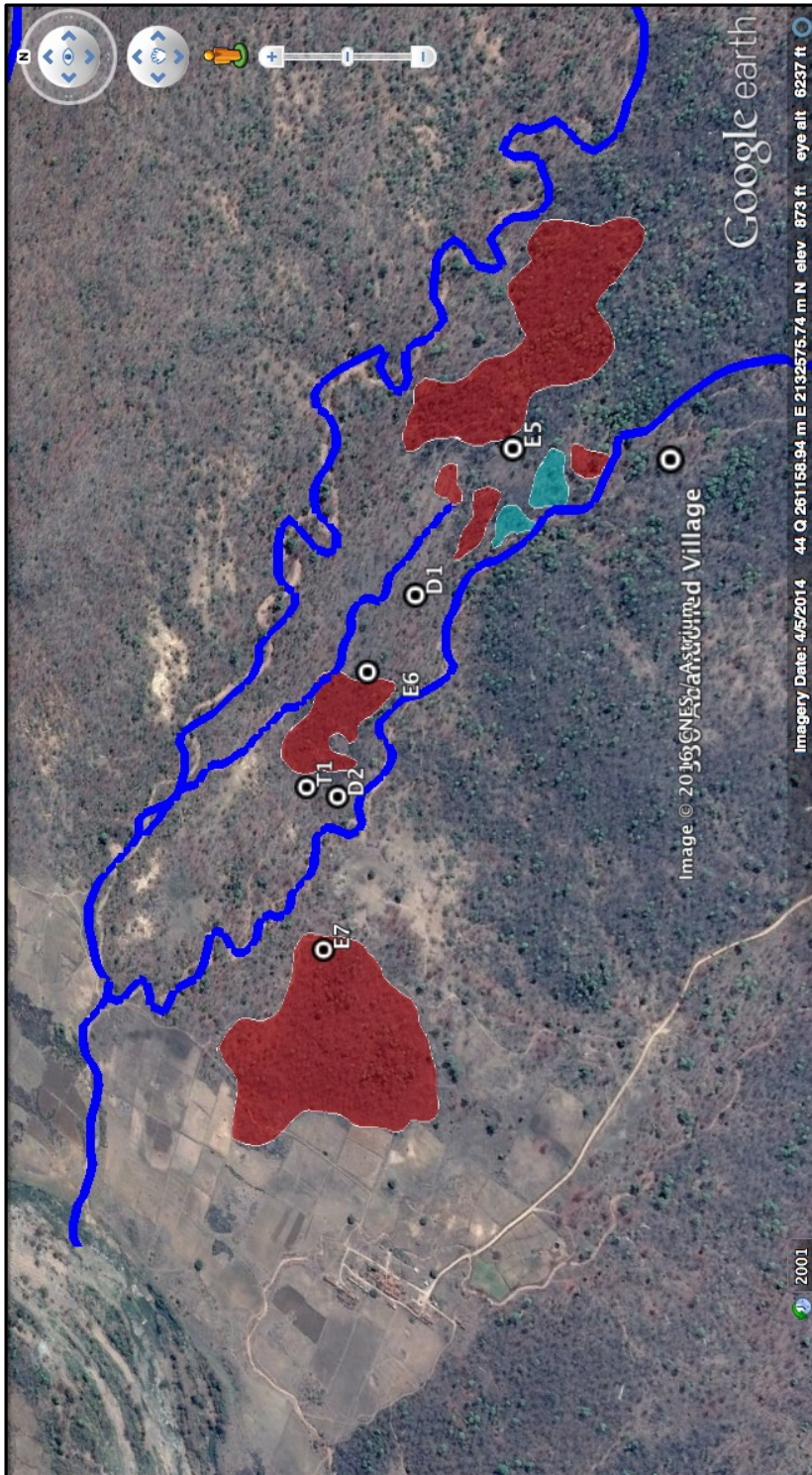


Figure 8.12 Showing the spatial location of slag heaps (red shades), tanks (light blue shades), seasonal streams (blue lines) and other archaeological remains in the abandoned smelter village near Ellampally. (Map work by T. Neogi)



*Figure 8.13 Image showing the extent of E6. Both E6 and E7 are located in a comparatively cleared area in the forest. However, the clearance did not occur within the living memory. (taken by the author)*



In terms of the spatial location of E5, E6 and E7, it is important to note that these sites are located adjacent to the confluence of three seasonal streams (Fig 8.12), which were dry when we visited in the summer of 2014. These streams, flowing north-west from the range of low hills that surround Ellampally, drain into a major stream a kilometre west of the abandoned settlement. It is probable that the sediments of the streams were regularly exploited by the *mudda kammari* residing in this settlement for iron ore for smelting.



*Figure 8.14 One of the loose circles of stone identified in the Ellampally forest. The ground inside the circle is packed with slag. The shadow of the forest trees makes it unclear in this picture (taken by the author)*

A few meters west of E6, adjacent to T1, two loose circles (approx. 40cm diameter) of granite were identified (Fig 8.14). The ground surface inside the circle was



packed with slag. Large chunks of concave slag, representing either the shape of the furnace base or the shallow slag collection pit at the end of a slag tapping channel, were identified (Fig. 8.15). A few meters away, behind T1, a group of granite slabs split into comparatively thin slices was identified. Larger pieces split like this were found both here and in other forest sites surveyed in the course of fieldwork in Adilabad (Fig. 8.16).



*Figure 8.15 Shallow concave chunks of slag in Ellampally forest (taken by the author)*

Based on this evidence, it can be argued that the stone circles were the locations of iron-smelting furnaces. The stones were probably used to demarcate the circumference of the furnace base before the construction in clay could begin. The

stones also helped provide foundational stability to the structure. Since no significant burning was noticed on the stones, it seems evident that the stones were used to provide external support for the furnace structure, and the heat of smelting did not penetrate through the thick furnace walls. Some of these stones might also have been used by the bellowsmen to sit on as they pumped the bellows by hand. Although it was not apparent from the ground level, it is probable that the slag tapped from the furnace through the slag tapping channel was probably collected in a shallow pit, and was cleared regularly after each smelt. This can help explain the presence of concave chunks of tap slag in the shape of a shallow base found in this area.



*Figure 8.16 Scatter of broken thin granite slabs. Full slabs were not found in this context (taken by the author)*



The thin slabs of granite present a tougher challenge for interpretation. However, clues about how these might have been used can be found in the smithing hearth of the *mudda kammari* in Adilabad. It is a common practice among the traditional blacksmiths in South Asia to build a screening wall of clay or bricks,



*Figure 8.17 Kuchanapally Kondiah of Dasturabad explaining the bellowing process of iron-smelting using a small smithing hearth. Note that one thin slab of granite is used to screen the hearth from the bellow, and another is used to insulate the hearth by preventing excess draft from outside. (taken by the author)*

between the bellows and the hearth. The traditional clay tuyere, or the iron pipe of the modern fan bellows, deliver the draft to the hearth from the bellows passes through the base of this screen. Thinly cut granite slabs, identical to the ones identified in the abandoned settlement in the Ellampally forest are frequently used



by the *mudda kammari* of the Kawal Reserved Forest area even today to screen the space between the hearth and the bellows for their outdoor smithing hearths (Fig. 8.17). These slabs, typically with a hole at ground level, allow the tuyere to pass through and deliver a draft to the hearth. It is therefore plausible that the broken pieces of granite slabs seen in the abandoned settlement had a similar use for the smelting furnaces or refining hearths that operated there.



*Figure 8.18 the foundation identified as T1 in the abandoned settlement.  
(taken by the author)*

Not much survives apart from the oral tradition as evidence of a habitation context in this abandoned settlement. There are no significant structures that survive. However, during our rapid survey, we identified some crucial evidence of habitation. On Figure 8.11, D1 and D2 indicate the findspots of two sets of pestles and grinding stones (Fig. 8.19).



*Figure 8.19 Showing the pestle and the grinding stone identified in D1 (taken by the author)*

Several postholes were also identified in an elevated area near D1. Near D2, a stone foundation for a structure was identified (Fig. 8.18).



*Figure 8.20 Image showing one of the tanks fed by a seasonal stream in the abandoned settlement (taken by the author)*

The foundation consists of four lines of loosely kept granite blocks placed one over another. Our guide, Budhu, said that it is a commonly held belief that this was the temple where the *peddoru* who smelted iron worshipped. Nothing much survives of the structure now to discern its erstwhile function. Further evidence of human settlement in this area is the two manmade tanks (Fig. 8.20) excavated on the course of the seasonal stream that marks the southern limit of the settlement. The tanks were dry when we visited but were definitely used for storing water coming down from the hills during the monsoon, to sustain the settlement.



From the ethnographic record (41), it can be established that before the Forest Laws were enforced, the *mudda kammari* were generally on the move every few years. They had identified several areas in the forest where both adequate timber for making charcoal and seasonal streams bringing down rich sediments of magnetite sand were available. Every few years, when the resources, especially those needed to make good charcoal, were exhausted, the *mudda kammari* would move to the another spot in the forest. It is also established by the botanical studies on *Sandra*, the principal source of timber for charcoal for the *mudda kammari*, that it takes 10 to 15 years for *Sandra* to grow back for the timber to be able to produce good quality charcoal (Orwa et al., 2009). Therefore, it is plausible that the *mudda kammari* probably returned to each of these areas after a gap of a decade or more. Based on the features identified in the abandoned settlement in the Ellampally forest, I propose the following hypothesis. However, since I was constrained by accessibility in the forest, my hypothesis below remains just an hypothesis until further survey can be arranged within the Kawal Tiger Reserve with proper permission and support from the forest authorities.

Based on ethnographic and the archaeological evidence found in the abandoned settlement at Ellampally forest, I propose that the abandoned settlement probably served as one of the many temporary *mudda kammari* habitations. The absence of evidence for permanent structures, apart from one granite foundation, points to the temporary nature of this settlement. The *mudda kammari* probably lived in huts constructed out of dry branches and roofed with teak leaves, a practice which still survives among the Gond and other tribal groups residing in the forests of

Adilabad. The lack of artefacts related to the habitation, apart from the granite pestles and grinding stones, also point to the temporary nature of the settlement. The only lasting evidence of the presence of habitation comes from the two tanks excavated on the flow of the seasonal streams, and the granite foundation of what seems to have been a tall structure. I argue that these were used as tangible markers in the forest landscape for the itinerant *mudda kammari*. These markers were crucial in identifying the areas where both ore and charcoal would be available. Since the *mudda kammari* probably returned to each area after a gap of 10-12 years (one generation) it was essential to demarcate them with lasting symbols of habitation in the landscape, in the form of tanks and probably a permanent structure, which may have functioned as a temple. These symbols were also essential to pass the knowledge about these spots to the next generation of *mudda kammari*, who would learn to identify these spots, in the absence of the elders. The features of the landscape within the forest, apart from the slag heaps, most likely played a crucial role in perpetuating the memory of these spots through generations. This flow of knowledge abruptly stopped when the forest laws came into force, preventing the *mudda kammari* from accessing these spots. This also ruptured their connection with their ancestral memory.

I mentioned earlier in 7.2.1 that the forest rangers, trackers and woodcutters regularly exploring the Kawal Tiger Reserve reported seeing several large man-made cavities, locally known as “wells dug by ancestors”. I suggested that some of these could actually be charcoal preparation pits, but some of the others could well be tanks or smaller water reservoirs, like the ones found at the abandoned



settlement at Ellampally forest. If given permission to survey inside the forest, I suggest that many similar sites like the abandoned settlement at Ellampally, could be identified, as evidences of the semi-nomadic lives of the *mudda kammari*.

#### **8.2.4 Walled smelter settlements: Laxmapur and Rangaraopeta**

Like the abandoned village near Ellampally, Laxmapur is another abandoned smelter settlement (Fig. 8.21). It is situated in Nizamabad district, near the border with Karimnagar. It is 13.5 km (as the crow flies) from Metpally, a major town in northern Karimnagar (Fig. 8.22). Unlike Ellampally, Laxmapur was not a temporary settlement. The archaeological remains and the surviving oral tradition about the habitation at Laxmapur suggests that it was a small (approx. 2500m<sup>2</sup>), permanent walled settlement for iron-smelters. Although the name survives, the village of Laxmapur, according to the current owners of the land, was abandoned a hundred years ago with the decline in iron-smelting in the region. Therefore, what survives today, is the ruins of a square perimeter wall of the settlement, of approximately 50m in length on each side, with four dilapidated bastions at the corners (Fig. 8.23, and a dense scatter of slag in the new agricultural fields immediately outside the perimeter wall (Fig. 8.21; 8.23).

We met Bharatawa (pseudonym), the mother of the current owner of the land on which abandoned village of Laxmapur stands. She was supervising agricultural workers who were weeding the agricultural fields, which were packed with a



Figure 8.21 The site of the abandoned smelter settlement of Laxmapur  
(taken by the author)

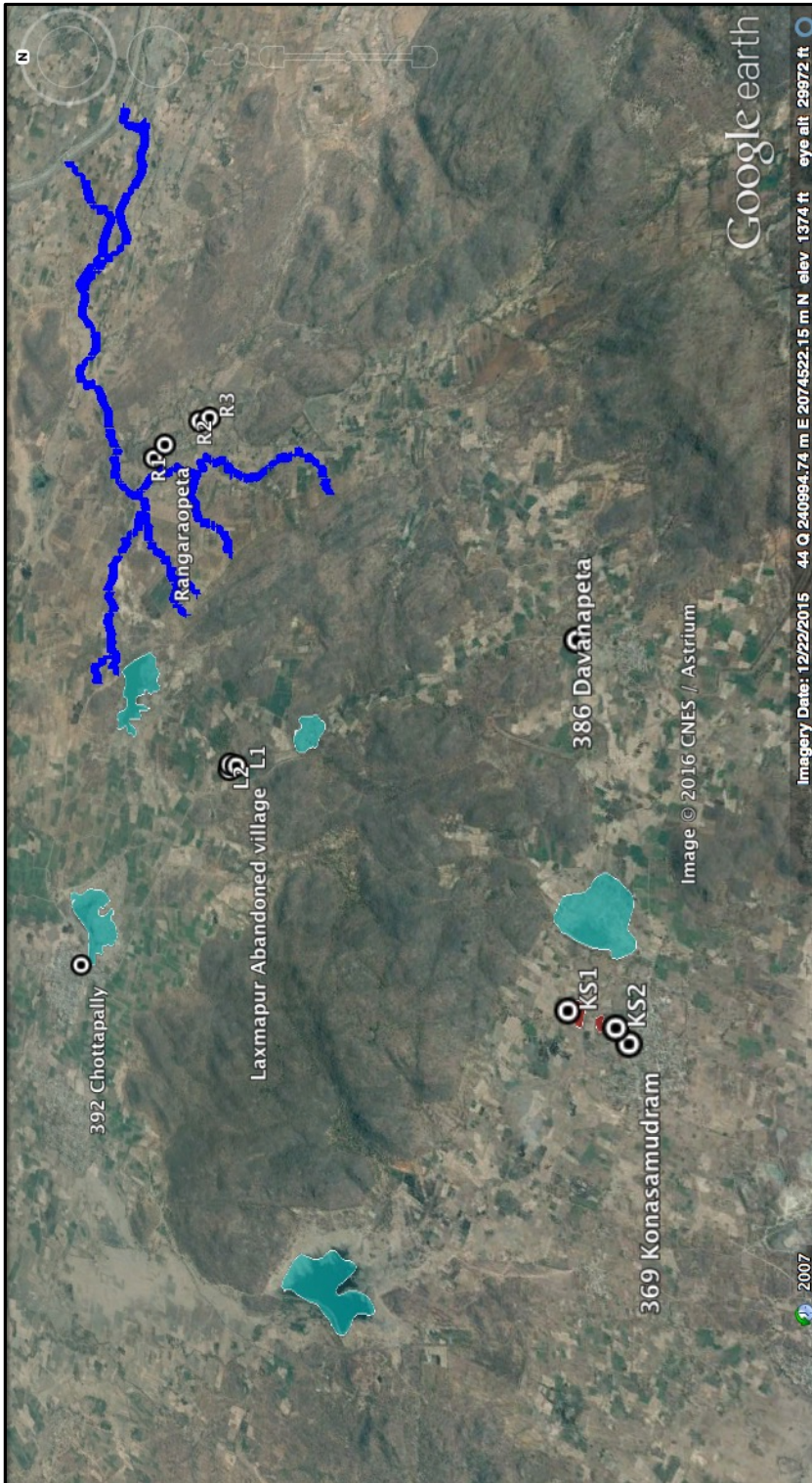


Figure 8.22 Google earth image showing the location of the abandoned village as Laxmapur. The areas shaded in red are slag heaps, cyan shades are tanks, and the blue lines are seasonal streams (Map work by T. Neogi)





Figure 8.23 Google earth image showing the spatial layout of the Laxmapur site (Map work by T. Neogi)



*Figure 8.24 Image showing the fallen South-East bastion of the walled settlement at Laxmapur (taken by the author)*

dense deposit of slag and ash from the levelled slag heaps, L1 and L2 (Fig. 8.23).

She said that the ash from the slag heap increases the fertility of the soil and therefore are beneficial for farming. The local farmers and agricultural labourers regularly quarried slag from Laxmapur for use in their fields.

I asked Bharatawa about the history of their ownership of the land and about the abandoned village. She was hesitant about giving out information in detail, and gave us the phone number of her son, who lives in San Jose, California. She said that we will have to take his permission before we could interview her in detail.

When I called him that night, her son suggested that I call him back the next



morning so that he can give us the details I wanted over the telephone. In our brief conversation the following morning, Bharatawa's son said that Laxmapur was a small, walled settlement specially created for the iron-smelters. He does not know when it was created and by whom, but his family were the owners of the land on which Laxmapur was founded for at least the last 150 years. He heard from his parents that his *muttata* (paternal great grandfather) used to collect taxes from what the iron-smelters earned from selling their *mudda*. He also suggested that the *mudda* was sold to the buyers of nearby Konasamudram, which is located approximately 4km south (as the crow flies) of Laxmapur. However, he was not certain about this, having never seen iron-smelting himself.

When I asked him if he knew anything about when the village was abandoned, he said that iron-smelting stopped during the time of his grandfather, about a century ago. He heard from his parents that the smelters were not able to sell their products anymore, and hence were unable to pay the taxes to his family, and therefore had to leave. The village has been abandoned since, and the surrounding areas outside the walls, where the iron-smelting took place, were converted into agricultural fields.

This a completely different type of settlement for the iron-smelters than the one identified in the Ellampally forest. The smelters here were not itinerant, and there was a certain amount of control by the local landowners over the production and consumption of iron. I propose that this was probably because Laxmapur is situated in an area, which was famous for production of high carbon crucible steel in the region. Steel produced here was considered to be a superior product, and

hence an invaluable prestige item, the production and consumption of which were likely to be closely monitored by the state. Two major centres of crucible steel production in this region in Nizamabad were Konasamudram, and Konapuram, located approximately 4km and 10km south of Laxmapur respectively.

In order to put this claim into context, I would like to draw attention to the only surviving eyewitness account of Konasamudram by Voysey (1832). According to this account, the recipe of crucible steel making involved the following types of iron:

The materials used in the preparation of the steel are two different kinds of iron; one from *Mirtapalli* [Metpally]—the other from *Kondapur* [his italics], in proportion of three parts of the former to two of the latter. The *Mirtapalli* iron is derived originally from the iron sand already noticed, and is sent in the state of large amorphous masses of a reddish grey color, and of an extremely porous texture. The *Kondapur* iron is procured from an ore found amongst the iron clay, at a place about 20 miles distant. It is said to be a dirty brown colour, and very frangible. The iron however, is moderately compact and of a brilliant white fracture.

(Voysey 1832: 246-47)

Voysey's account clearly states that the *mudda* smelted out of *wuske* were brought from the area surrounding Metpally. During Thelma Lowe's survey in the late 1980s in this area (Fig 2.4), and during my survey for the current research, several sites with evidence of iron-smelting were identified.



I explored some low hills near these sites and identified the presence of banded magnetite ore on them (Fig. 8.25), the sediments from which were brought down by the seasonal streams to the foothills and exploited by the *mudda kammari* for smelting.



*Figure 8.25 A scatter of banded magnetite ore on the top of a hill in Regunta, Nizamabad. The archaeometallurgical evidence of smelting was identified in the Regunta village. (taken by the author)*

Therefore, it is evident that Laxmapur can be situated in this context of magnetite smelting in the Metpally area, which had possibly supplied *mudda* required for making crucible steel in Konasamudram (and Konapuram). Laxmapur is also not the only walled smelter settlement in the Metpally area.



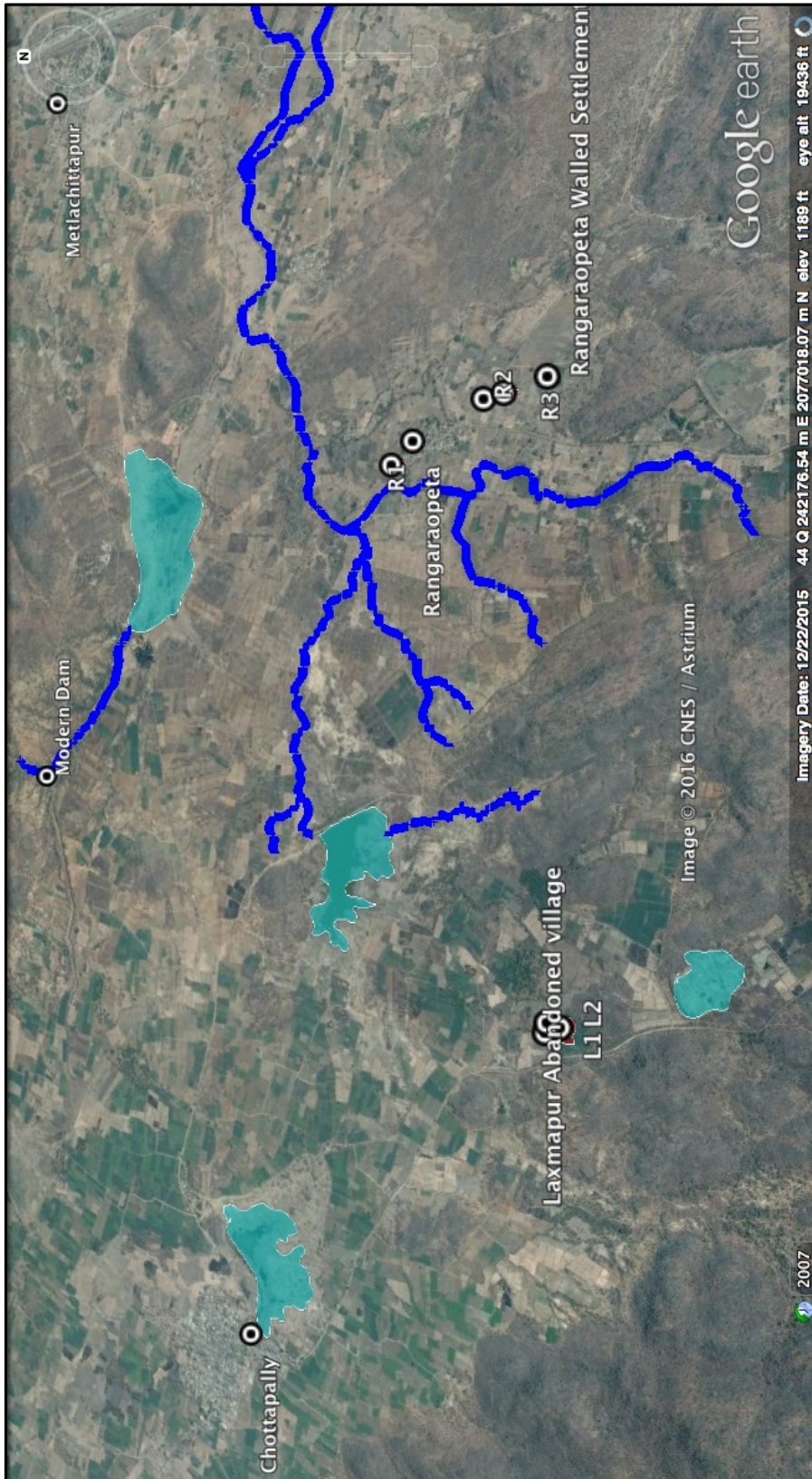


Figure 8.26 Google Earth image showing the location of Rangaraopeta and Laxmapur (Map work by T. Neogi)

During her survey, Thelma Lowe had identified a walled enclosure on a low hill at Rangaraopeta, 3km east of Laxmapur (Fig 8.26). When Thelma Lowe surveyed Rangaraopeta in the late 1980s, she found the the perimeter wall to be made of granite blocks and enclosed a very small area of 1998m<sup>2</sup>. Four small towers on the four corners of this walled enclosure were identified. She had identified 3 crucible steel making areas outside the fortification along with one iron-smelting area. She suggested that the walled enclosure was probably used for storing the smelted iron and crucible steel and overseeing the smelting and steel making work. Based on the evidence at Laxmapur, it can also be suggested that the enclosure was probably also used to house the iron-smelters. According to Thelma Lowe's field notes, the owner of the land with the archaeometallurgical evidence at Rangaraopeta said that the village was a major commercial hub for iron and steel 200 years ago.

When I visited Rangaraopeta in 2013, all the crucible heaps had vanished, and only 3 slag heaps partially survived (R1, R2, R3; See Fig. 8.26). I did not have access to Thelma's notes at that time, and the villagers could hardly recall anything about the history of the site from memory. They were not aware of the existence of the walled settlement on the low hill near the village. Later, in 2015, when I gained access to Thelma's notes, I succeeded in identifying the traces of the walled settlement with the help of satellite imagery on Google Earth (Fig. 8.27).





Figure 8.27 Google Earth image showing the overgrown perimeter wall of the settlement at Rangaraopeta (Map work by T. Neogi)

Based on the archaeological evidence, Laxmapur and Rangaraopeta therefore, represent a different type of life for the *mudda kammari* than that seen in the forests of Adilabad. In the latter instance, the *mudda kammari* moved freely within the forest to smelt iron. They were probably required to pay some form of tax to the local authorities. However, the authorities seem to not have directly interfered in their lives and controlled the production process in any other ways, at least until the Forest Laws were enforced. In Laxmapur and Rangaraopeta, the *mudda kammari* were accommodated in distinct walled settlements. Being in the network of the lucrative crucible steel trade, the local landlords seemed to have exerted a direct control over the production and consumption of iron and steel in this area.

Unfortunately, unlike the forests in Adilabad, the memory of iron and steel manufacturing does not survive in the Metpally area. According to the owner of the land in Laxmapur, the smelters had migrated elsewhere more than a century ago. My recent efforts in identifying these families did not yield any favourable result.

However, despite the significant difference, there also seems to have been a similarity in the proximity of the location of iron-smelting sites to the seasonal streams between Rangaraopeta, Laxmapur and the sites in the Kawal Tiger Reserve. Rangaraopeta is situated in the valley between two hills, to the west and south respectively. The valley is criss-crossed with seasonal streams flowing down from these hills in the monsoon (Fig. 8.26). These streams are within easy access of the old walled settlement and the locations inside the modern village, where heavily disturbed slag heaps were found. There are two old tanks identified to the west and south of Rangaraopeta, at the foot of the two low hills (Fig. 8.26). These

tanks also received water streaming down from the hills during the monsoon. The channels through which the water entered these tanks, were probably also exploited for collecting *wuske*. All the streams and both the tanks were in easy access also to the smelters who lived in the walled settlement of Laxmapur. In connection to this, it is crucial to note here that Thelma Lowe identified rectangular granite slabs carved with shallow cups near one of these two tanks. She suggested that these were used for gravity separation of magnetite sand from quartz gangue as the water flowed in to the tanks from the seasonal streams. The lighter gangue is washed away with the in-flowing water, whereas the heavier *wuske* will get deposited in the cups, and can be later gathered by the smelters for use. I have not seen anything like the one described by Thelma, during my fieldwork. However, it is highly probable that the granite slabs were removed and reused in a different context.

### 8.2.5 Iron-smelting and the old irrigation network

Apart from the itinerant *mudda kammari* groups in the forests of Adilabad and those living in what looks like closely monitored walled settlements in Nizamabad, there was another group of *mudda kammari* who lived at the edge of the regular villages. This group of *mudda kammari* collected *wuske* from the streams and canals that flowed into the village tanks (Fig. 8.28) from the neighbouring hills, in more or less a similar method as discussed above for Rangaraopeta. In an earlier chapter (see 3.2.4) I have described a network of interconnected medieval and early modern irrigation canals, tanks and reservoirs that collected and stored rainwater from the hills through streams and torrents, and distributed water to

different villages in the region to sustain agriculture. These irrigation canals (*vagu*), and village tanks or reservoirs (*cheruvu*), were crucial not only for agriculture, but also for supplying *wuske* to the *mudda kammari* based in these villages from the nearby hills. Therefore, it is not unusual that a majority of the iron-smelting sites identified in northern Karimnagar district are located near these tanks and reservoirs situated at the village horizons. A few *mudda kammari* families who remain in some of these villages, still reside close to these tanks, and therefore away from the old centre of the villages. This physical separation from the village community also may have reinforced the *mudda kammari*'s fringed status in the local village hierarchy (see 8.3).

Iron smelting evidence has also been identified in some villages which are not situated in the immediate proximity of iron-ore rich hills. In these villages, the smelting sites are found located near the village tanks on the outskirts of the settlement. These tanks are found connected to large reservoirs in the immediate valley of the hills far away. However, it is unlikely that the *mudda kammari* here could depend on the *wuske* brought by these irrigation canals to sustain iron-smelting. Since *wuske* is heavy, it will settle to the bottom of the streams in the first opportunity, with the reduction in the current as these reach flat valleys or drain into reservoirs adjacent to the hills and not travel further along the channel. It is therefore possible that the smelters in a few villages situated away from the hills must have travelled to one or many of the streams in the valleys of the hills to collect *wuske* during the monsoon. However, these type of sites are very few in number in the study area.



In one of our brief conversations, Kuchanapally Kondiah (**FN**), a *mudda kammari* of Dasturabad informed that in the last days of iron-smelting, the *peddoru* were not given permission to access the streams inside the forest to collect *wuske*.

Therefore, they collected *wuske* from the water that flowed in the Dasturabad tank from these streams. He suggested that this was an old method, used by the *mudda kammari* in the neighbouring areas (**FN**).



*Figure 8.28 Image showing a medieval tank in Pedda Bellalla. A heavily disturbed slag heap was identified adjacent to the tank bund (taken by the author)*

However, knowledge about this method of ore collection seems to have been lost among the senior *mudda kammari* of northern Karimnagar who were still alive during the time of this study. The two seniormost *mudda kammari* alive in this region, Chattlapally Bhumaiah (**58**) of Battapally and Desiradi Bhumaiah (**61**) of Gopulapur, recalled that in their youth they saw their *mudda kammari* relatives bringing *wuske* from a stream near Shekalla Gutta (lit. hill). This may well have been the case in the early 20<sup>th</sup> century, when many of these old streams and canals may have silted up and become defunct due to lack of proper maintenance. However, during the peak of production in the pre-industrial period, a single source for iron-ore could not have sustained the industry widespread across the landscape of northern Karimnagar. Based on examples from my survey, I will elucidate this

correlation between the seasonal streams, reservoirs, irrigation canals and village tanks, and the iron-smelting sites.

### ***Battapally-Potharam***

Battapally-Potharam is a twin village situated in a narrow valley in northern Karimnagar surrounded on three sides by low, discontinuous hill ranges (Fig. 8.29). The village is located 3km north-east (as the crow flies) from Sarangapur, which is the local administrative headquarters, and 20km north of Jagitial town. Battapally-Potharam is also the home of Chattlapally Bhumaiah (see 7.2.3 & 49), a 75-year-old *mudda kammari* who is one of the two seniormost smelters alive in this area, with memory of preindustrial iron-smelting.

During the 2010 survey, four partially-disturbed, large-deep slag heaps were identified in this area (Fig. 8.29). When I surveyed the village again in 2013-14 only one of these (BTP2) survived, albeit heavily disturbed due to the excavation of a deep tube-well for irrigation which had destroyed a large portion of the slag heap (Fig. 8.30). The narrow valley in which Battapally-Potharam is situated, have a gentle eastward slope where it opens up to the wide valley of the Godavari river. This narrow valley is bisected by an old irrigation channel (henceforth IC1) (Fig. 8.29; magenta line) which flows east following the gentle slope. IC1 originates from a large reservoir in the Sarangapur Reserved Forest and connects some tanks on its slow meander along the valley, finally draining into a large reservoir north-east of Nerella, a village situated 6km south-east of Battapally-Potharam, at the bottleneck where the narrow valley opens up to the wide Godavari river valley.

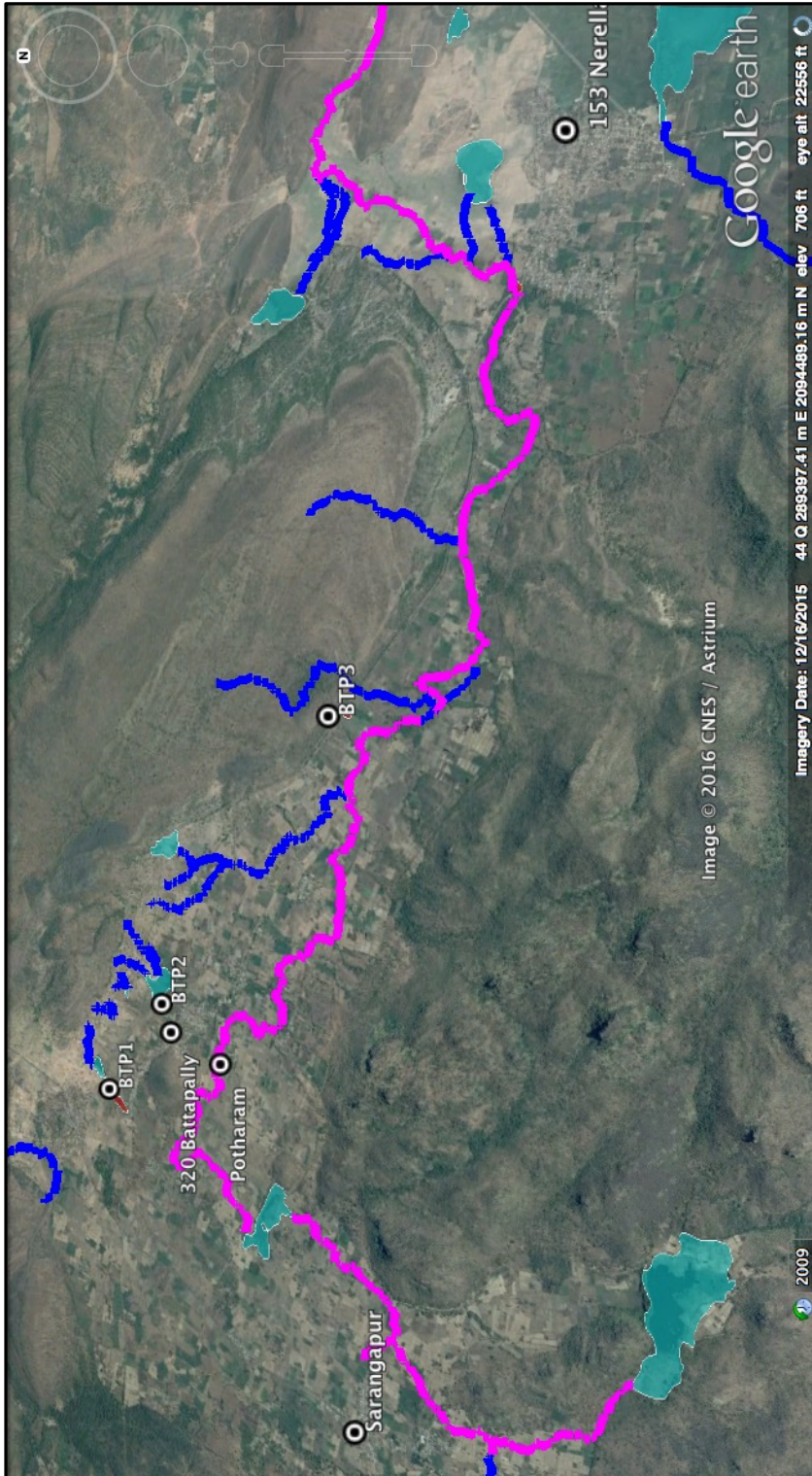


Fig 8.29 Google Earth image showing the location of Battapally –Potharam including the slag heaps (BTP 1,2,3) seasonal streams (blue lines), canals (magenta lines), tanks and reservoirs (cyan shades) in the area. (Map work by T. Neogi)





*Figure 8.30 Chattlapally Bhumaiah standing in front of a heavily disturbed BTP2 near a tank in Battapally-Potharam. (taken by the author)*

On its course, IC1 collects water from several small seasonal streams coming down the low hills during the monsoon (Fig 8.29), and delivers the *wuske* brought down by these streams to the tank in Nerella which it connects on its course. Apart from providing water to IC1, some seasonal streams also supplied water directly to some village tanks in the area. Among the three iron-smelting sites identified in Battapally-Potharam, two (BTP1 & BTP2) are located adjacent to a tank fed by the water from the seasonal streams originating from the nearby hill (Fig 8.32). As I mentioned earlier, among these only BTP2 survives.



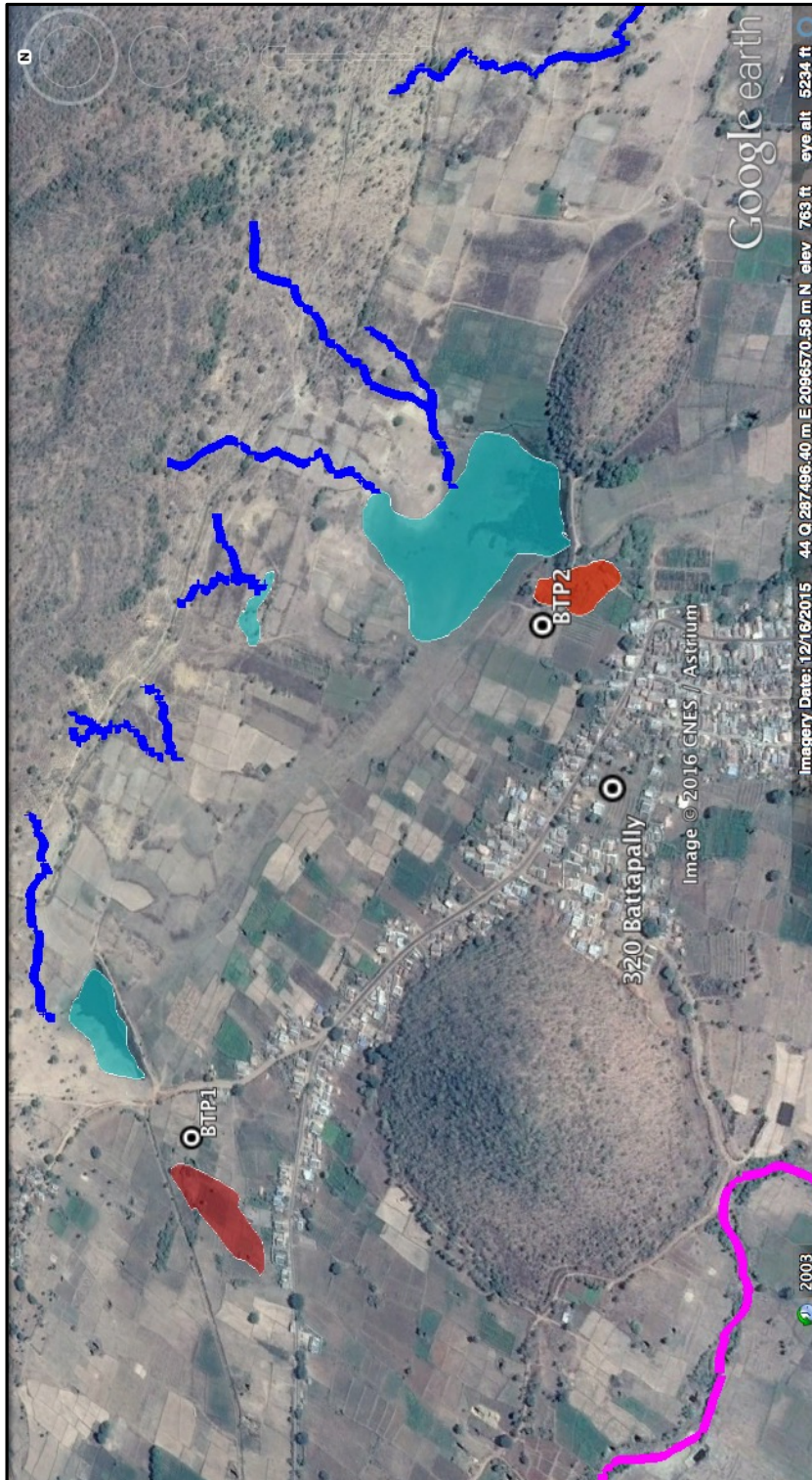


Figure 8.31 Google Earth image showing the location of BTP1 and BTP2 adjacent to tanks fed by seasonal streams (Map work by T. Neogi)



*Figure 8.32 The tank near BTP2 in Battapally. The low hills seen in this picture are the sources of the streams supplying water, and rich sediment of wuske to this tank during monsoon (taken by the author)*

The importance of the tanks, seasonal streams and irrigation channels to the iron-smelters was unrecognized during our preliminary survey in 2010. However, in 2013-14, during the survey for the current project, I walked along the bund of the tank near BTP2 to identify possible streams feeding the tank (Fig. 8.31 & 8.32).

This survey was done at the peak of summer in Telangana and it was really difficult to distinguish between dry streambeds and paths, however, the GPS locations of all the possible channels were identified. Finally, satellite images on Google Earth deriving from different times of the year were analysed to identify the stream



channels supplying the tank in figure 8.32. Although very shallow due to silting, the streams are still active in supplying water to the tank in Battapally. All other channels depicted in figure 8.31, including the one supplying the tank near BTP1, were also identified during the satellite image analysis.

### ***Nerella***

Nerella is a village situated 6km south-east of Battapally-Potharam. IC1 circumvents Nerella, passing along the foot of the low hills to the west and north of the village. A new tarred road divides the village into two, almost equal halves, with the older part of the village lying to the north of the road, on a small habitational mound indicating a long occupational history for this part of the village (Fig. 8.33).

This older part of the village also has the remains of a medieval mudbrick bastion built on a granite foundation. I mentioned earlier (see 8.2.1) that, following the extant traditional construction practices in the study area, slag was used as a strong binding material for construction of this mudbrick bastion. The slag used in the bastion was from a slag heap situated a few meters west of the bastion (Fig. 8.33), just outside the perimeter of the village secondary school. The heavily disturbed remains of this slag heap was identified in 2010 by the *Pioneering Metallurgy* survey team (Fig. 8.34).

With the help of field walking and satellite imagery, two tanks were identified in Nerella, at the northern and southern boundaries of the village. The tank in the northern boundary of the village is most probably older of the two, being supplied by IC1 through two small canals.

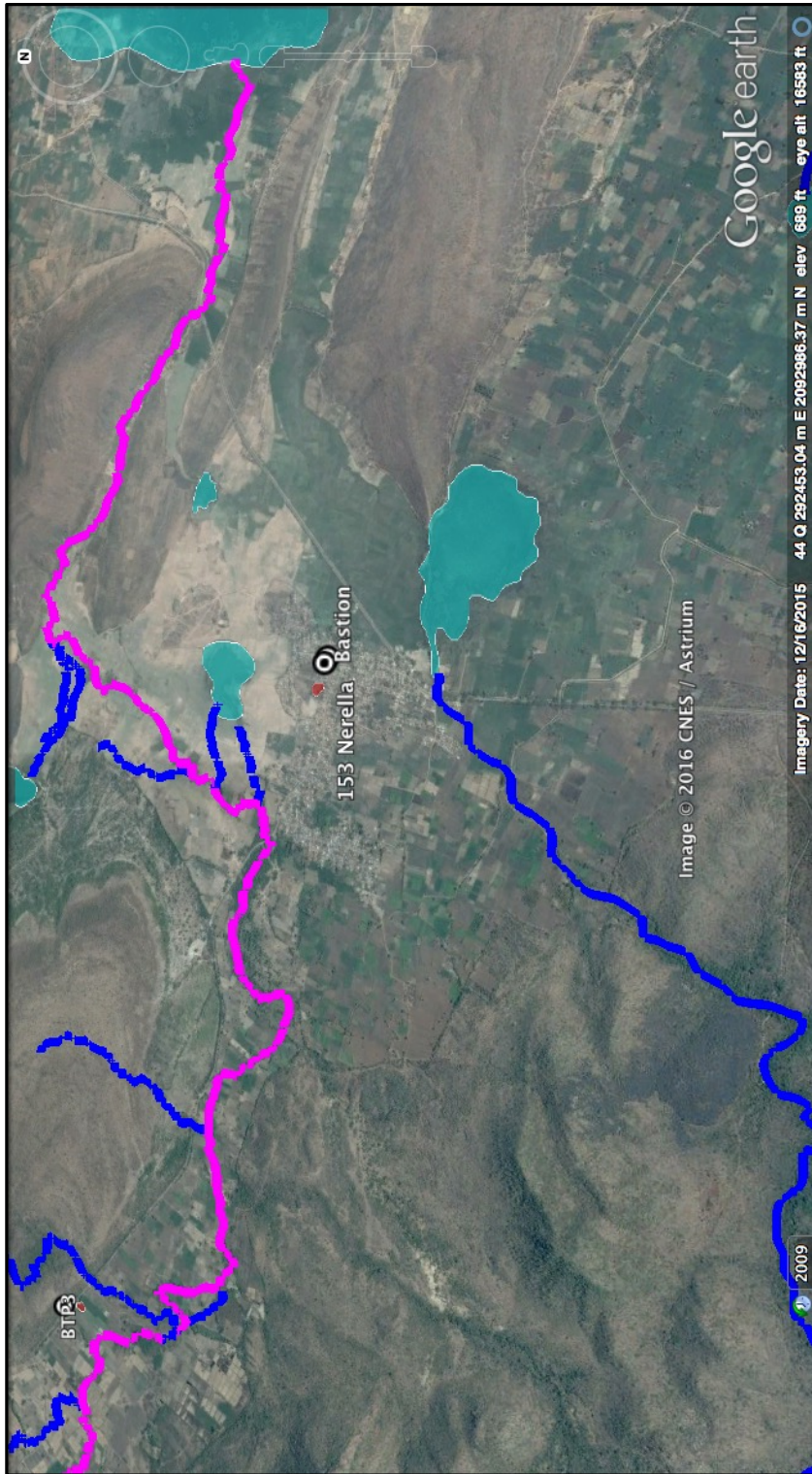


Figure 8.33 Google Earth image showing the location of Nerella (Map work by T. Neogi)





*Figure 8.34 Image showing the highly disturbed, flattened slag heap at Nerella. This photo was taken during the Pioneering Metallurgy Survey in 2010 and now forms a part of the archive of the same project.*

Between Battapally-Potharam and the canals connecting the northern tank of Nerella, IC1 collects water from a number of seasonal streams coming down from the same range of low hills that supplies water to the tank in Battapally (Fig. 8.32). Therefore, it can be argued that the northern tank in Nerella received a considerable amount of *wuske* from the same hill transported by IC1 after the rains. It is therefore, significant that the slag heap identified in Nerella during the survey in 2010, is located only 300m (approx.) south of the tank (Fig. 8.33). Based on this evidence it can be argued that the *mudda kammari* of Nerella possibly

collected *wuske* from the sediment deposited in the bed of the canals connecting IC1 and the northern tank. However, no memory of iron-smelting survives in Nerella among the extant *kammari* families to corroborate this information.

### ***Uppumadugu***

Uppumadugu (Fig. 8.35) is a village situated 20km west of Nerella, and 5km east of the town of Raikal, a regional headquarters in northern Karimnagar. The current village of Uppumadugu is situated along the road connecting Jagitial to Raikal. This is a comparatively new village established 30 years ago, when the road was also constructed. An abandoned, older village, with overgrown houses is located behind the new village, less than a kilometre away from the modern road. The abandonment of the old village happened within living memory, although, opinions differ among the villagers about the actual purpose of it. Some of the villagers I met suggested that the settlement had moved closer to the new road for better accessibility. While other, older villagers recall a flood, when the new canal system that runs by the village, was being constructed, as the reason for abandonment.

In 2010, the *Pioneering Metallurgy* survey team identified one disturbed large-deep slag heap (UM1) within the old village. Two other heavily disturbed slag scatters (UM2) were also identified in an agricultural field near UM1 (Fig. 8.36). In 2010, the memory of iron-smelting among the inhabitants of Uppumadugu was non-existent. When I revisited in 2013-14 season, I was told by the village elders that those who made iron had left the village a long time ago during the time of their grandfathers. However, when I looked at the landscape, both immediate, by exploring on foot,

and remotely, by careful analysis of satellite images from the area, a familiar pattern began to emerge.

Uppumadugu is situated in a valley bounded by two ranges of low hills to the east and the north. An old irrigation canal IC2, flows through the north of the valley connecting several tanks and reservoirs along its course, and collecting rainwater stored in the reservoirs at the edge of this northern hill. A modern irrigation canal (MC) runs through the area, collecting rainwater in the same way as the old canal, from the same hill, and delivers it to the villages in the central, western and southern part of this valley (Fig 8.35). MC, in fact collects the maximum rainwater from this hill, therefore rendering the older torrents and streams feeding the old reservoirs, and in turn IC2 largely dry. Other old linking canals connecting IC2 or one of the reservoirs on the course of IC2 with the village tanks and the reservoirs further south in the valley, have also dried up due to the diversion of rainwater to the MC. Therefore, the valley here is full of dry or semi-dry old tanks, with no discernible canals linking these to IC2 or one of the reservoirs along its course.

Uppumadugu is a case in point. The slag heaps in Uppumadugu (Fig. 8.37) are situated adjacent to the tank, on the northern boundary of the old village. The tank was dry (Fig. 8.38), and portions of it were then used by the farmers for agriculture. A farmer who accompanied us to the tank, said that the tank used to provide drinking water and water for irrigation earlier, but now it remained mostly dry throughout the year.



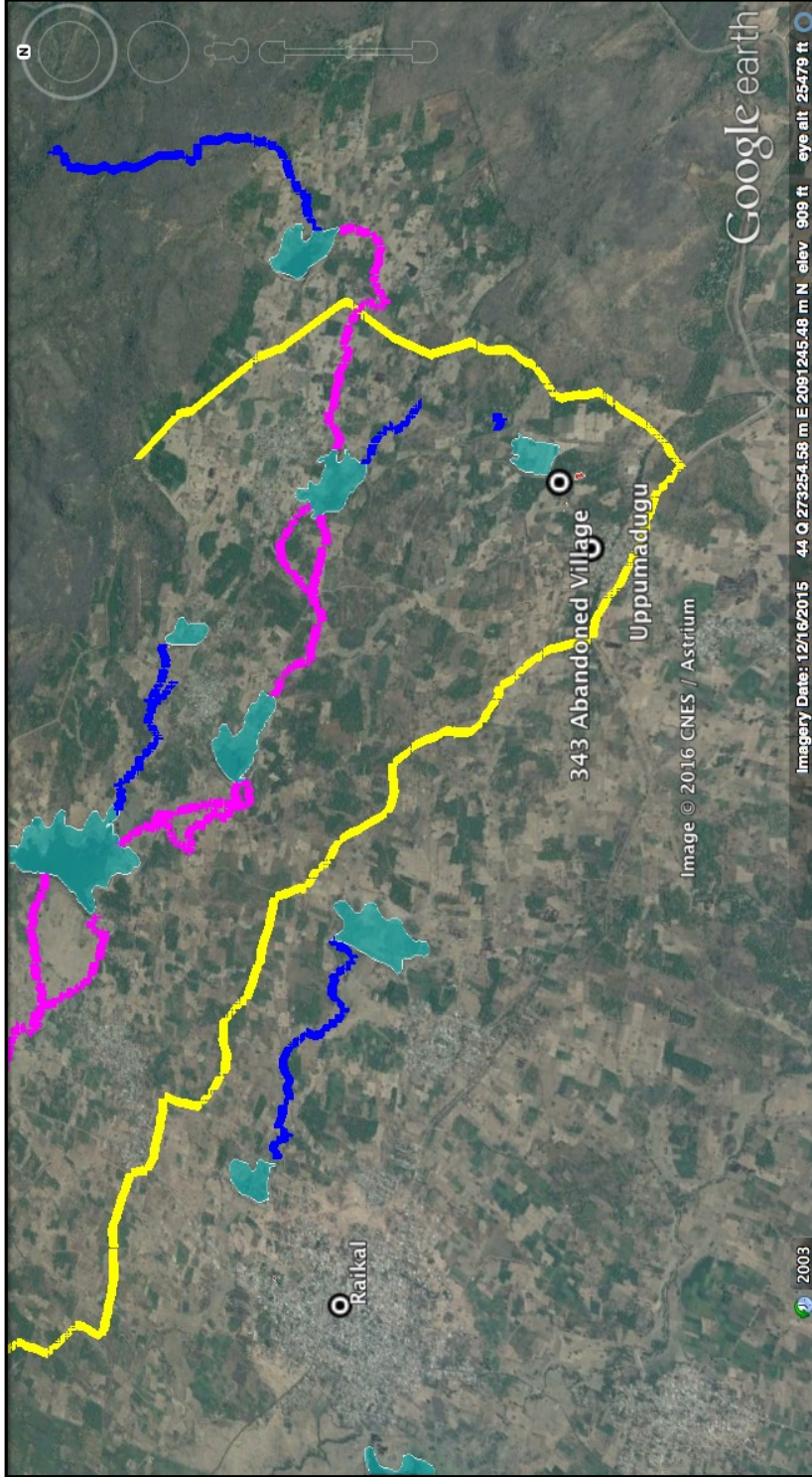


Figure 8.35 Google Earth image showing the location of Uppumadugu in context of the surrounding landscape. The magenta line signifies an old irrigation canal (IC2), the blue lines are shorter channels connecting IC2 to the tanks and reservoirs (in cyan shade), or between two tanks. The red shades are slag heaps. The yellow line is a modern, concrete irrigation canal (MC) constructed in the last 30 years (Map work by T. Neogi)





Figure 8.36 Google Earth image showing the position of slag heaps in relation to the village tank in Uppumadugu (Map work by T. Neogi)



I walked around the tank, and failed to distinguish between paths and the shallow, silted up, dry channels that might have supplied water to the tank from the reservoirs and IC2 situated further north. Later, while looking through a number of satellite images of the area, a channel flowing south from a reservoir in the north on the course of IC2 was identified (Fig. 8.39). The reservoir is situated only 1.5km north of the Uppumadugu tank, and is most likely to have been the source of water for the tank.



*Figure 8.37 Overgrown slag heap UM1 in Uppumadugu (taken by the author)*



*Figure 8.38 The semi dry tank at the northern edge of the old village in Uppumadugu  
(taken by the author)*



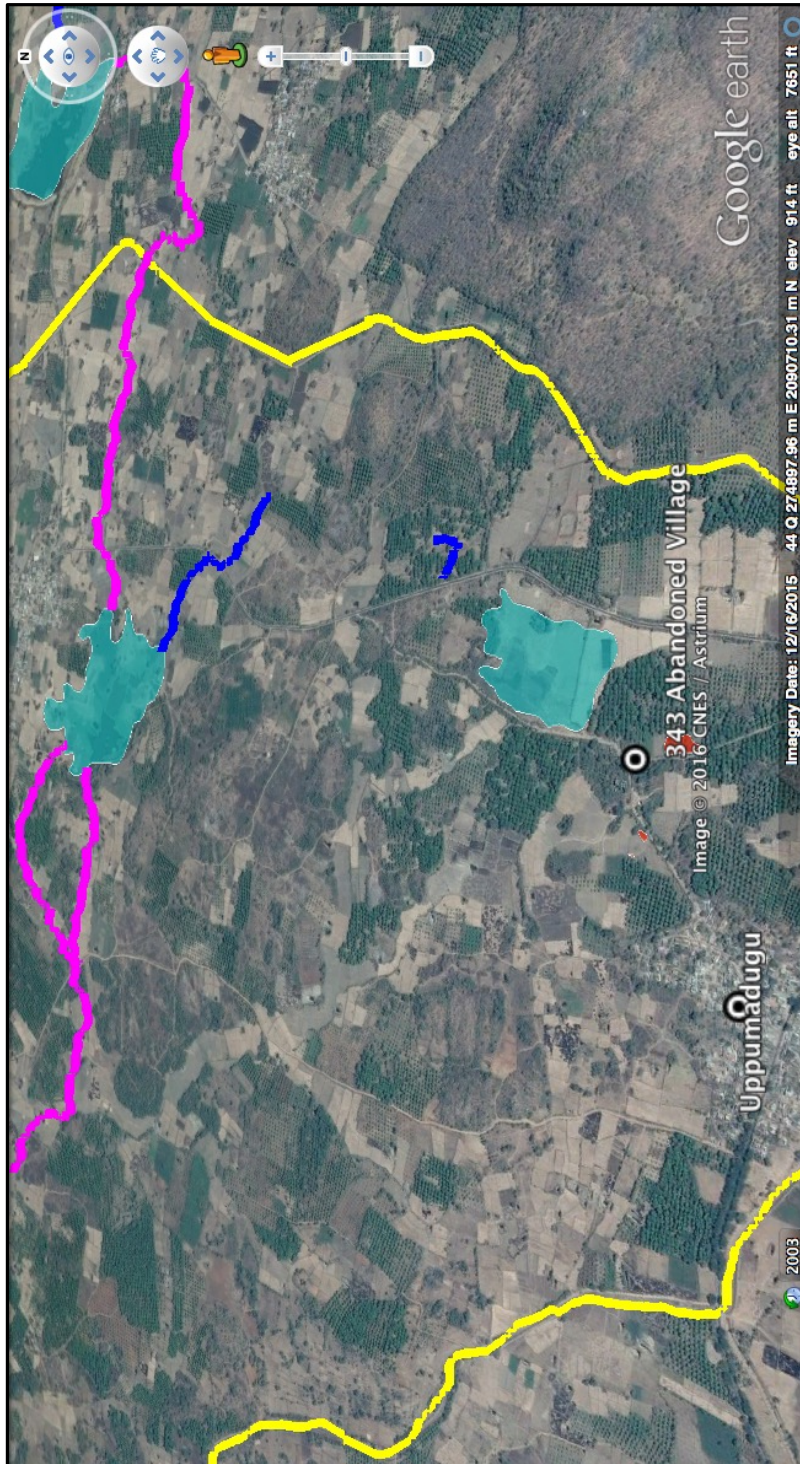


Figure 8.39 Google Earth image showing the location of the reservoir on IC2, the village tank in Uppumadugu and the discontinuous channel (blue line) originating from the reservoir on IC2 (magenta line). (Map work by T. Neogi)

The course of the channel can be traced only up to 600m from the reservoir.

Another small portion of what is most likely to have been the part of the same channel, could be identified in a place at about 170m north of the tank at Uppumadugu (Fig. 8.40). It is probable that this channel connected the reservoir with the tank in Uppumadugu. The reservoir was fed primarily by IC2 and probably by a few other torrents bringing rainwater down the hill during the monsoon. In turn, the water was transported through this now largely dried-up channel to the tank in Uppumadugu. It is probable that the *mudda kammari* in Uppumadugu collected *wuske* from the sediments of the torrents coming down the hill before it entered the reservoir on its immediate valley, and transported them to smelt in near the tank on the northern boundary of the old village.

Another possibility is that there were other torrents which directly fed the tank at Uppumadugu from the hills. These torrents are not traceable at present as the excavation of MC has disrupted this network. This was exploited by the *mudda kammari* to smelt iron. It is worth noting that the streams originating in the north-eastern slope of the same hill also supplied water to the tank outside Rechapally. Archaeological evidence of iron-smelting was also identified there in 2010 survey.



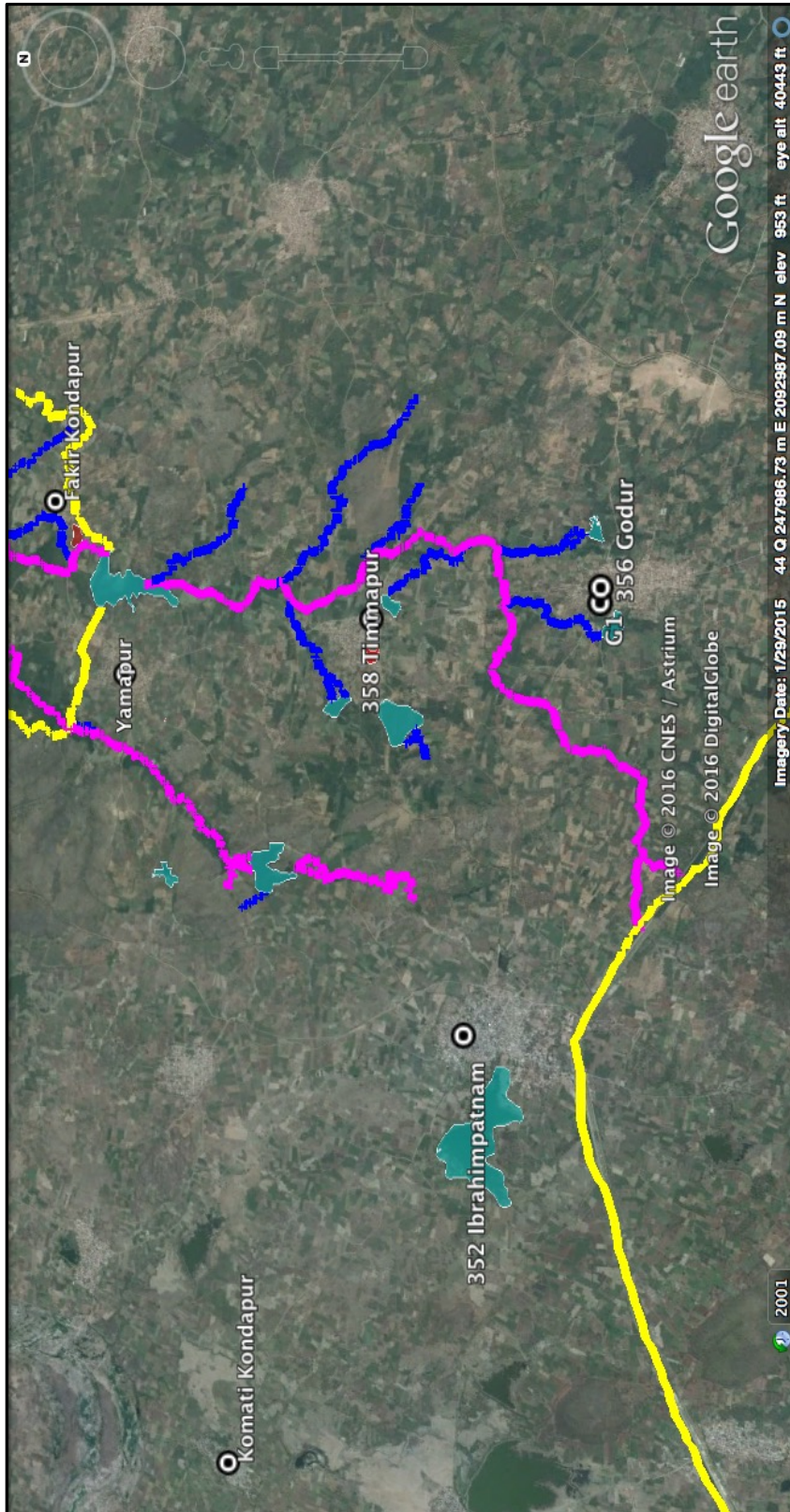


Figure 8.40 Google Earth image the landscape around Godur and Timmapur. The magenta lines are old irrigation canals (IC3 & IC3a). The blue lines are smaller channels connecting IC3 & 3a with village tanks and reservoirs (blue shades). The yellow lines are modern irrigation canals which often cut through the course of the old canals diverting the water flow into these new canals, rendering the old canals dry. (Map work by T. Neogi)



### ***Timmapur and Godur***

Timmapur and Godur are situated in the north-western part of Karimnagar district, near its border with Nizamabad. Timmapur and Godur are located about 8km and



*Figure 8.41 This is what remains of the original slag heap at Godur. (taken by the author)*

5.5km north of Metpally, the administrative headquarters of north-western Karimnagar. To the north of these villages are Fakir Kondapur and Yamapur, two major iron-smelting and possibly crucible steel making sites identified during the

*Pioneering Metallurgy* survey in 2010 (Fig. 8.40).

Ibrahimpattam, a major crucible steel making centre in this region is located about 4km west from both Timmapur and Godur, adding to the archaeometallurgical significance of these two villages.

During my survey in 2013-14, a slag scatter was identified in Godur (Fig. 8.41). The villagers in Godur explained that the slag heap was located at the western edge of the village near the village tank. However, the government has recently quarried slag from the heap and used it for constructing a new tarmac road that passes through the village.



*Figure 8.42 The highest point of the slag heap at Timmapur. Note that summit of the heap is of the same height as the adjacent single-storey house on the right. The heap is actually higher than the tile-roofed traditional houses on the left. (taken by the author)*





*Figure 8.43 The exposed section from the semi-quarried slag heap in Timmapur showing alternate layers of refractory material from the furnace and slag. (taken by the author)*

The archaeological evidence of iron-smelting is better preserved at Timmapur, situated 3km north of Godur. A semi-disturbed slag heap survives in the south-western edge of the village covering a large area of approximately 170m<sup>2</sup>. In places the heap still survives to its original height of approximately 3.5m (Fig. 8.42).

A part of this heap has been quarried away to make the foundation of the dirt roads in the village. A large portion of the heap was also quarried to make way for a new Shiva temple that was established a few years ago. The quarrying exposed a section in the heap, which shows at least three layers of refractory materials from

the furnace, interspersed with thick packed layers of slag, both tapped, and from furnace construction (Fig. 8.43). The archaeometallurgical evidence at Timmapur suggests a continuous period of intense iron-smelting. There are two *kammari* families living in Timmapur at present. Their houses are adjacent to the slag heap, and they have been living there for several generations. However, the present generation has no knowledge of iron-smelting. The *kammari* families were not comfortable talking about smelting. They suggested that the *chityalapenta* had been made by people who came from outside and were not associated with their families.

The context of iron-smelting in Timmapur and Godur is similar to the one discussed above in the case of Laxmapur and Rangaraopeta. Like the latter, the former is situated close to a major steel production centre, Ibrahimpatnam. It is therefore plausible that both Timmapur and Godur, as well as Fakir Kondapur and Yamapur, further north, supplied iron smelted from magnetite ore, essential for making steel. However, unlike Laxmapur and Rangaraopeta, no walled settlements or bastions were identified in Godur or Timmapur. This does not indicate the absence of direct official control over production. The control, if existed, was probably exerted by other means not apparent from the archaeological record, and is difficult to discern in the absence of living memory of iron production.





Figure 8.44 Google Earth image showing the location of the slag heap in relation to the old tanks, channels (blue lines) and old irrigation canal (IC3; magenta line). (Map work by T. Neogi)

In terms of the location of smelting sites in the landscape, a familiar picture emerges. I have already stated earlier, that the slag heap at Godur was located near the village tank on the western edge of the village. In Timmapur, the large slag heap is located within 500m of the three tanks situated in south-western, north-western, and south-eastern edges of the village (Fig. 8.44). The same can be said for Fakir Kondapur, where another major smelting site in the area was identified in 2010. The slag heap here is located within a few hundred meters from the reservoir, south of the village (Fig. 8.45). An old irrigation canal, IC3 (Fig. 8.40) connects Fakir Kondapur, Timmapur and Godur. IC3 originates from the Godavari river flowing approximately 3km north of Fakir Kondapur. Apart from diverting the excess water from the river for cultivation inland, IC3 also collected rainwater on its course from the seasonal streams and torrents coming down the low hills scattered across the landscape in this area. While the large reservoir outside Fakir Kondapur is situated on the course of IC3, the tanks near Timmapur and Godur are connected to IC3 with small channels (Fig. 8.40; 8.46). Another old irrigation canal, IC3a (Fig. 8.40) branches out from IC3 and flows through the west of the area, collecting rainwater from the hills on the west. The complete course of IC3a could not be traced despite consulting several satellite images, and most likely to have dried out a long time ago. It is probable that the large reservoir outside Fakir Kondapur where IC3 and the seasonal torrents coming down from the neighbouring hills drained into might have been a good spot for collecting *wuske* for the *mudda kammari* living in the villages of Fakir Kondapur, Yamapur, Timmapur and Godur.



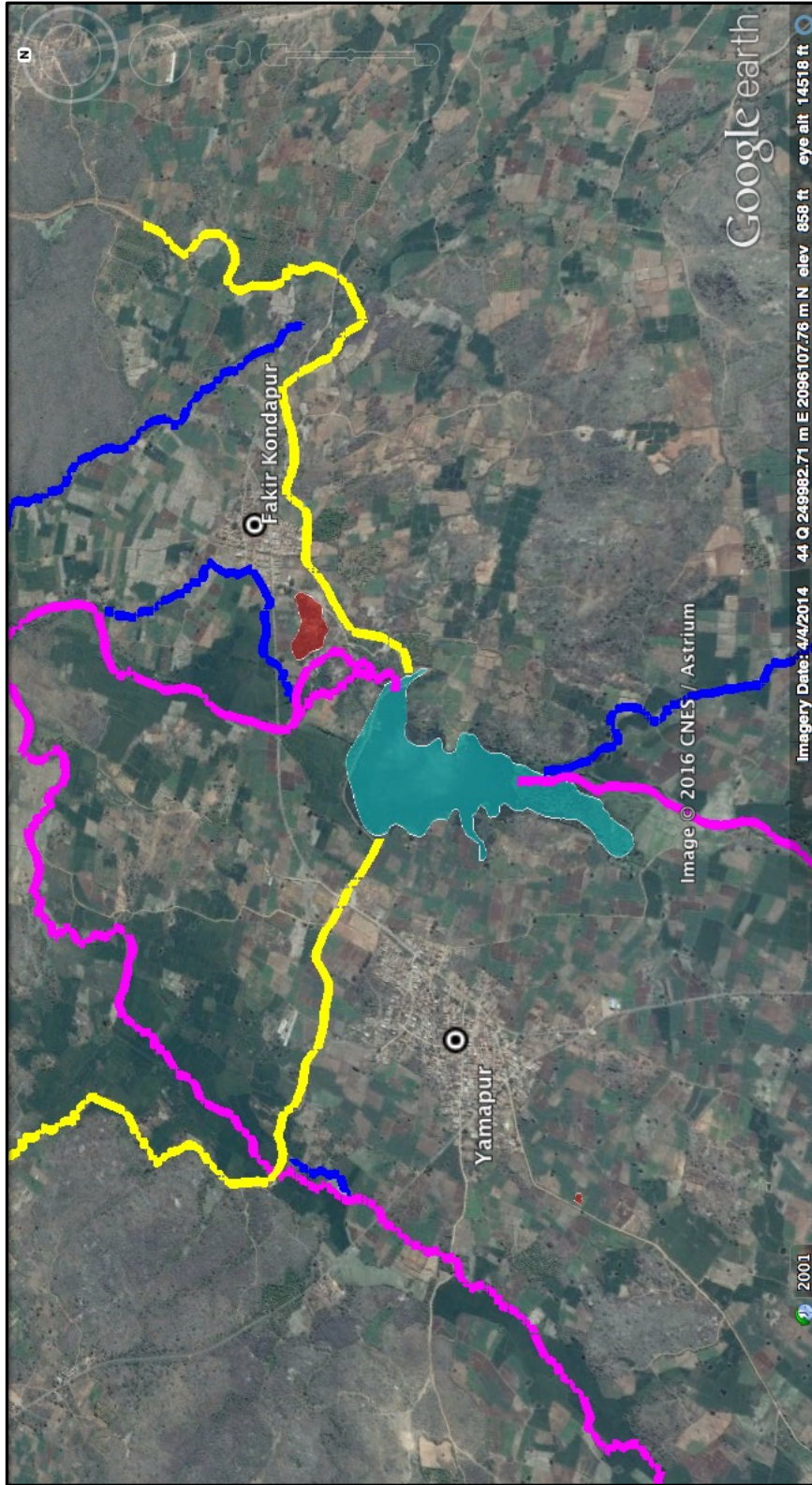


Figure 8.45 Google Earth image showing the location of the slag heap in Fakir Kondapur in relation to the old tanks, channels (blue lines), old irrigation canal (IC3; magenta line), and its modern counterpart (yellow line). (Map work by T. Neogi)

Going by the extent of the surviving archaeological record of iron-smelting in Timmapur and Fakir Kondapur, the supply of *wuske* must have been constant and in large amounts.



*Figure 8.46 An old, silted-up channel connecting the north-western tank of Timmapur with IC3 (taken by the author)*

The reason behind the drying or silting-up of the old irrigation canal system in the area is similar to the ones discussed above for Uppumadugu and elsewhere in northern Karimnagar—the construction of new, concrete irrigation canals. Two new canal systems are present in this area. Running west to east, both canals carry water from Godavari and supply it for agriculture inlands. The canal running through the north of the area cuts across the course of IC3 and IC3a, diverting the



water that originally flowed through these canals (Fig. 8.46). Both IC3 and the new canal meets at the reservoir outside Fakir Kondapur. This reservoir stored water brought in by IC3 from the Godavari and the rainwater from the surrounding hills through streams and torrents during the monsoon, before being carried south by IC3. While IC3 still brings in water from the Godavari and the surrounding hills to the reservoir, the new canal disrupts the supply of this water further south by diverting the majority of it to its course eastwards. The southward flow of IC3 from this reservoir in Fakir Kondapur has therefore been reduced to a trickle, largely drying up the tanks which were supplied by IC3. A small volume of water that IC3 still brings down, drains into the second new canal 2.5 km south of Godur.

### **8.3 *Mudda Kammari* and Iron-Smelting in Physical Space**

The close proximity of extant *Mudda Kammari* families to the archaeological evidence of iron production has been discussed in brief earlier (see 6.3.2). In this section, I use remote-sensing techniques to understand this association in the context of the landscape. Since a majority of the iron-smelting sites recorded during the *Pioneering Metallurgy* survey and the fieldwork for the present research fall in northern Karimnagar, the spatial relationship between the sites, current *Mudda Kammari* habitations and the physical features are explored in that part of the study area.

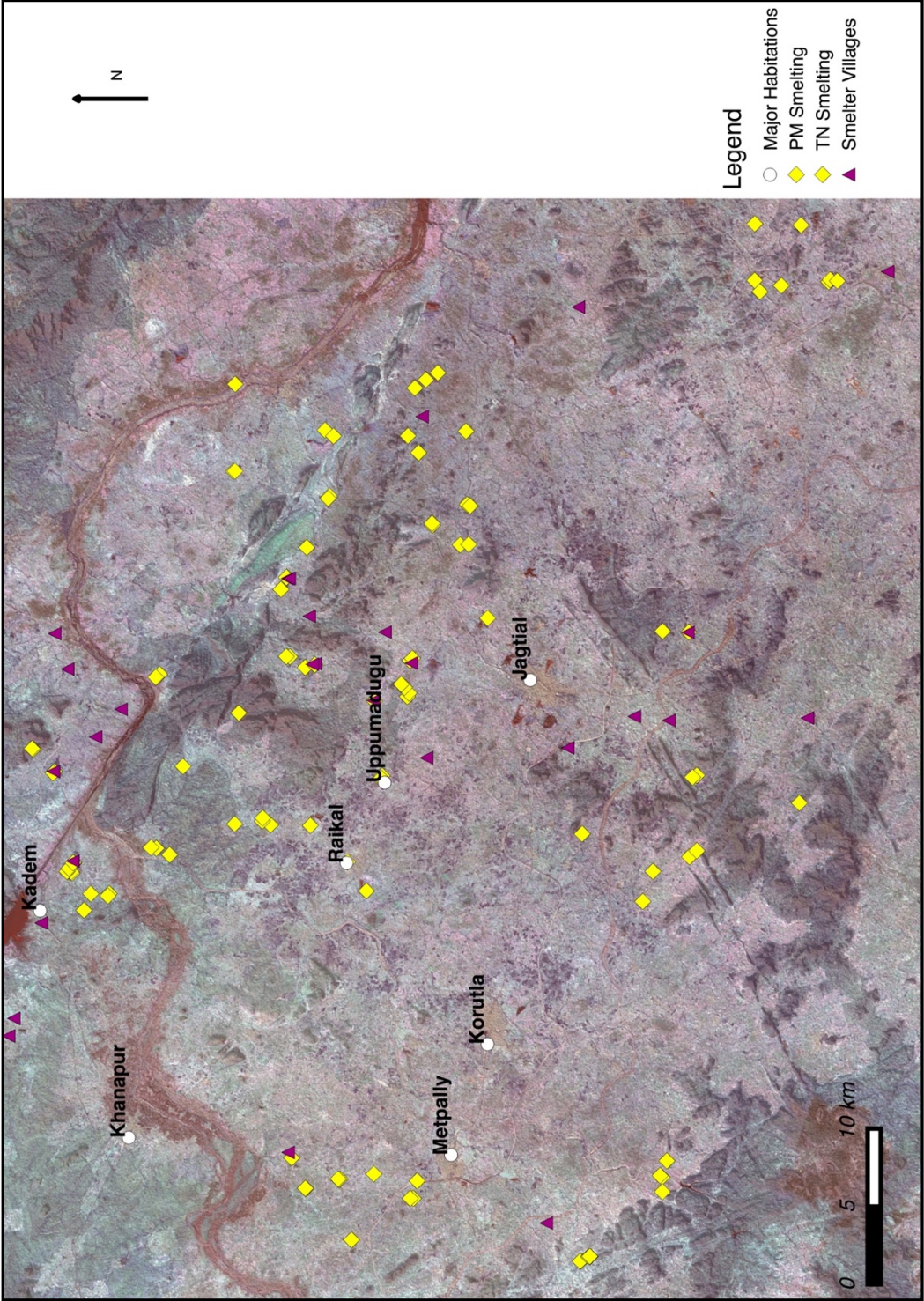


Figure 8.47 Distribution of the iron-smelting sites and Mudda Kammari villages in the landscape of northern Karimnagar using Landsat 8 imagery. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)

### 8.3.1 Methodology

In order to create a GIS basemap with clear visibility of the physical features in the landscape the most recent available Landsat 8 satellite imagery of the study area was downloaded from the USGS-Giovis website. The image with the least available percentage of cloud cover was selected in order to facilitate a better visual of the landscape and the accuracy of the data. After importing the bands 2 through 7 on the QGIS platform, a simple RGB432 band rendering was done to illuminate various features of the landscape. Hillshading was applied to accent the hills in the landscape. The iron-smelting sites recorded by myself and the *Pioneering Metallurgy* project were then plotted on the map along with the villages with *Mudda Kammari* families identified during the current research. Figure 8.47 is the product of this exercise, where the dark brown, accented areas in the landscape are the dispersed low hill ranges of northern Karimnagar. The dark brown colour is indicative of the mineral content of the hill's outcrops, including a high proportion of ferrous minerals. The greener patches in the map indicate dense vegetation, including agriculture and forests.

### 8.3.2 Spatial location of the sites

Five distinct clusters of smelting immediately become apparent in northern Karimnagar on plotting the archaeometallurgical evidence on the map (Fig. 8.47).

1. The cluster of site north of Jagitial south of the Godavari river (Fig. 8.48).
2. The cluster of sites immediately south of Jagitial (Fig. 8.49).
3. A small cluster of sites southeast of Jagitial, near Peddapally (Fig. 8.50).

4. A cluster of sites, recorded by Pioneering Metallurgy Survey and Thelma Lowe to the southwest of Jagitial (Fig 8.51).
5. A cluster of sites near Metpally, northwest of Jagitial (Fig 8.52).

The first four clusters are scattered along four ranges of hills, while the sites in the fifth cluster are distributed in the immediate valleys of the highly dispersed individual low hills that characterise the north-western part of Karimnagar.

The relationship between the hills, the iron-smelting sites and the location of the iron-smelting communities become very apparent. It is evident that a majority of the sites and the present *Mudda Kammari* communities were situated in close proximity to the low hills of the study area (Fig. 8.47). This further confirms the evidence that natural physical features of the landscape were diligently used by the *Mudda Kammari* to sustain the local iron production. In order to economize labour input in a labour intensive production system of iron-smelting, small groups of *Mudda Kammari* seem to have chosen to smelt in the immediate valleys of the hills where magnetite ore was available. However, apart from the low hill near Mallyala and Shekallah, no ore sources feature in the collective memory of the elder members of the Mudda Kammari community. This might indicate that the smelters had exploited and exhausted other sources of ore before the 1900s, and only Mallyala and Shekallah remained as active sources of iron-ore within living memory.



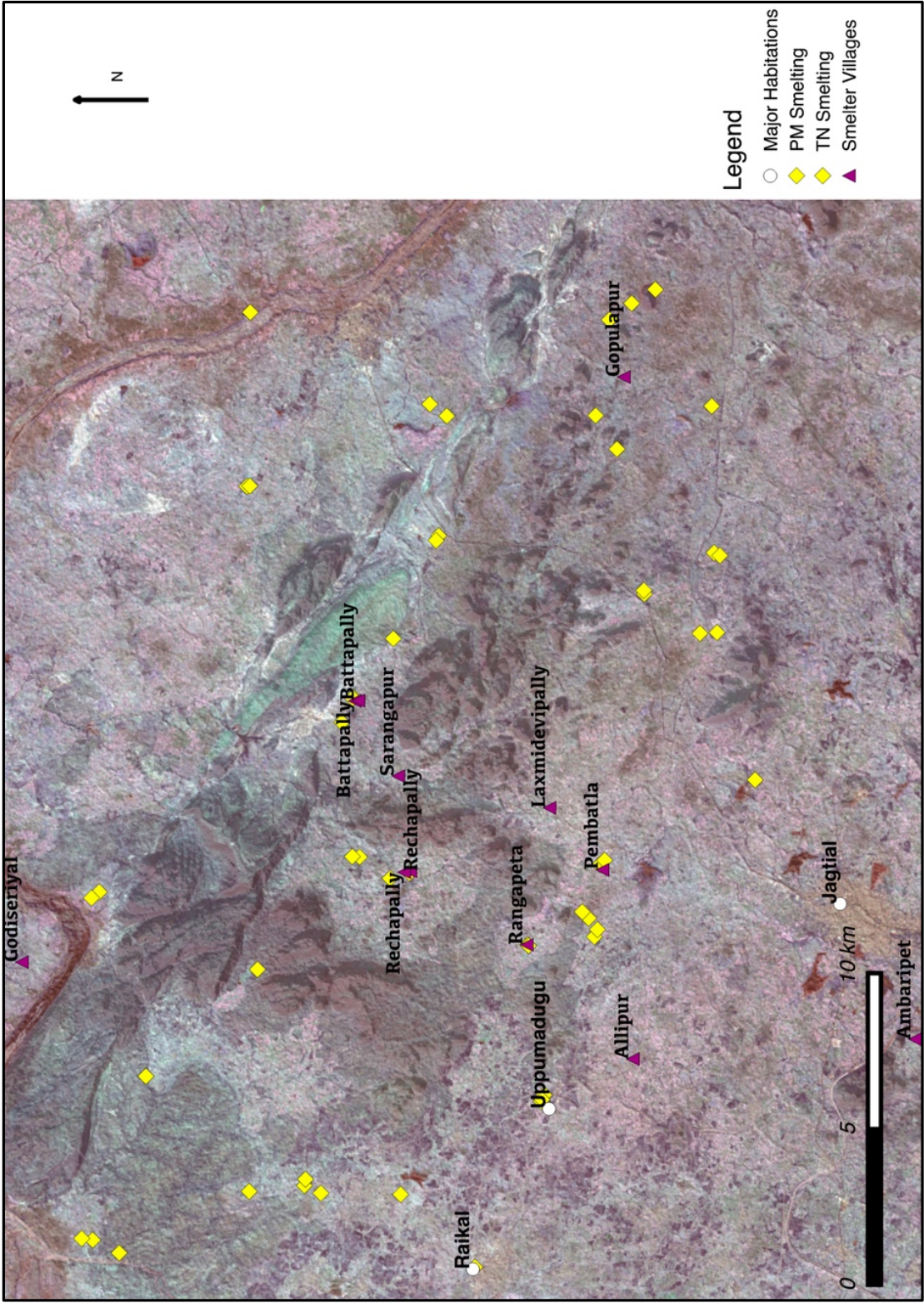


Figure 8.48 Iron-smelting sites and Mudda Kammari villages in Cluster 1. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)



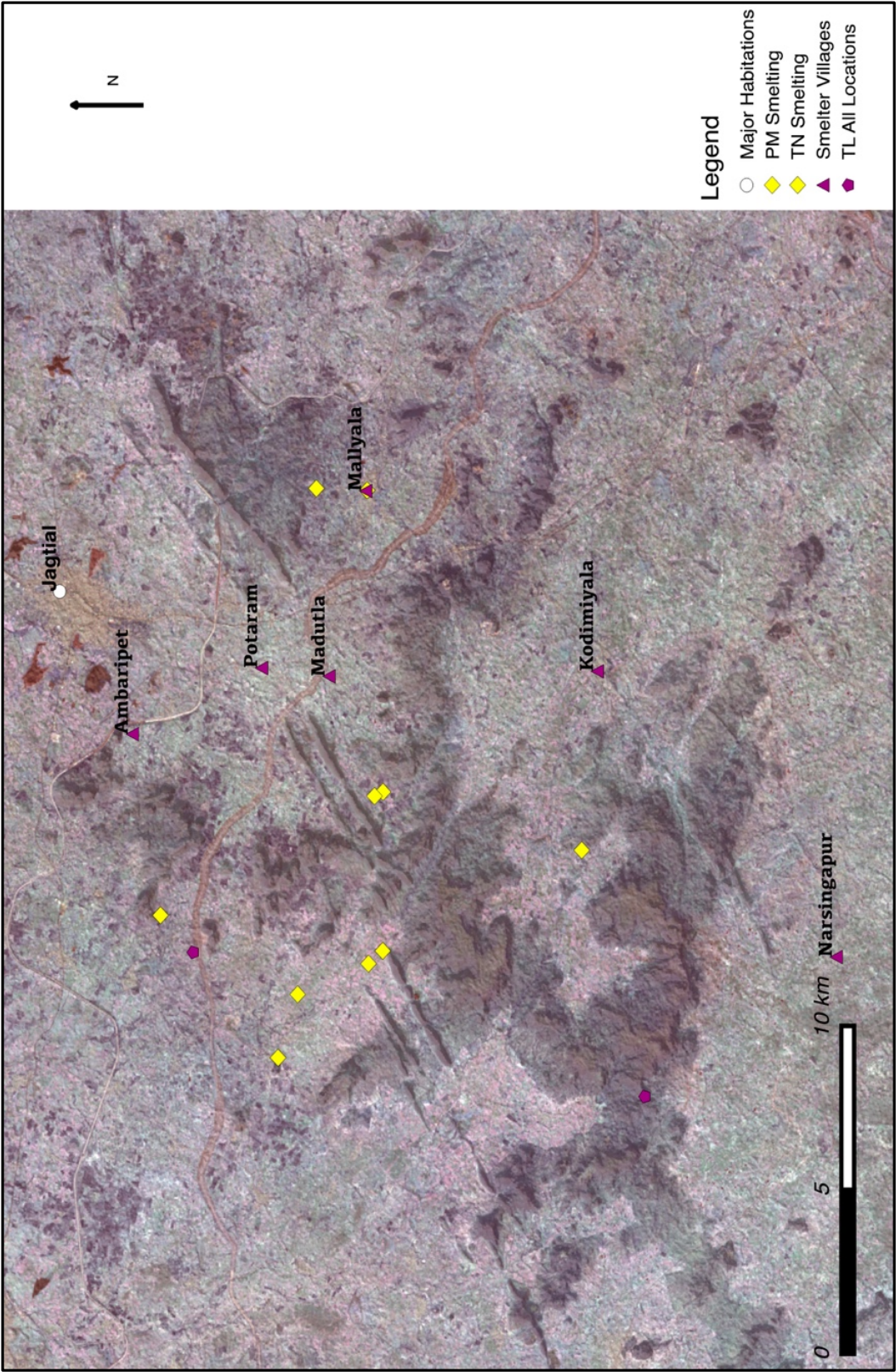


Figure 8.49 Iron-smelting sites and Mudda Kammari villages in Cluster 2. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)



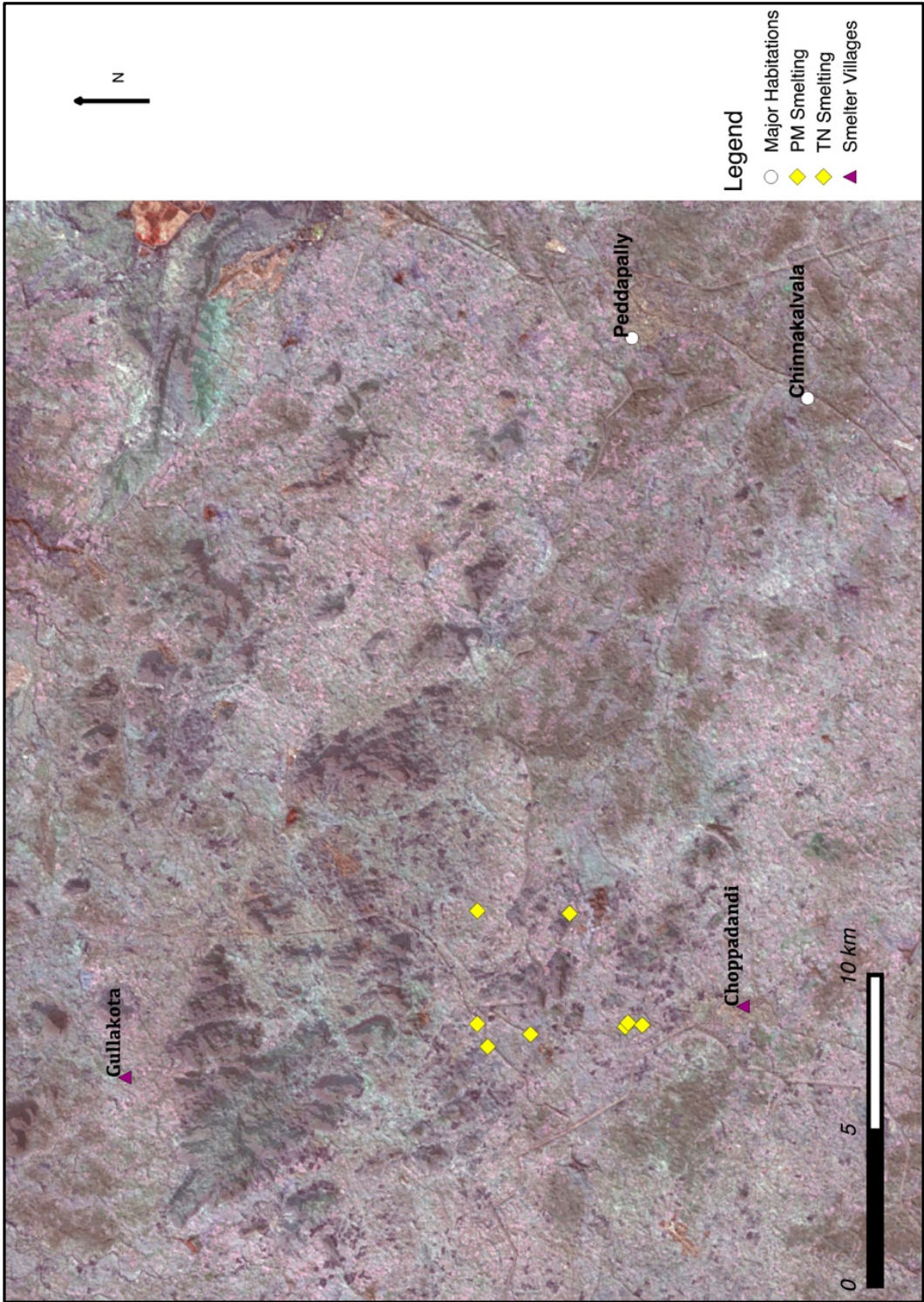


Figure 8.50 Iron-smelting sites and Mudda Kammari villages in Cluster 3. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)



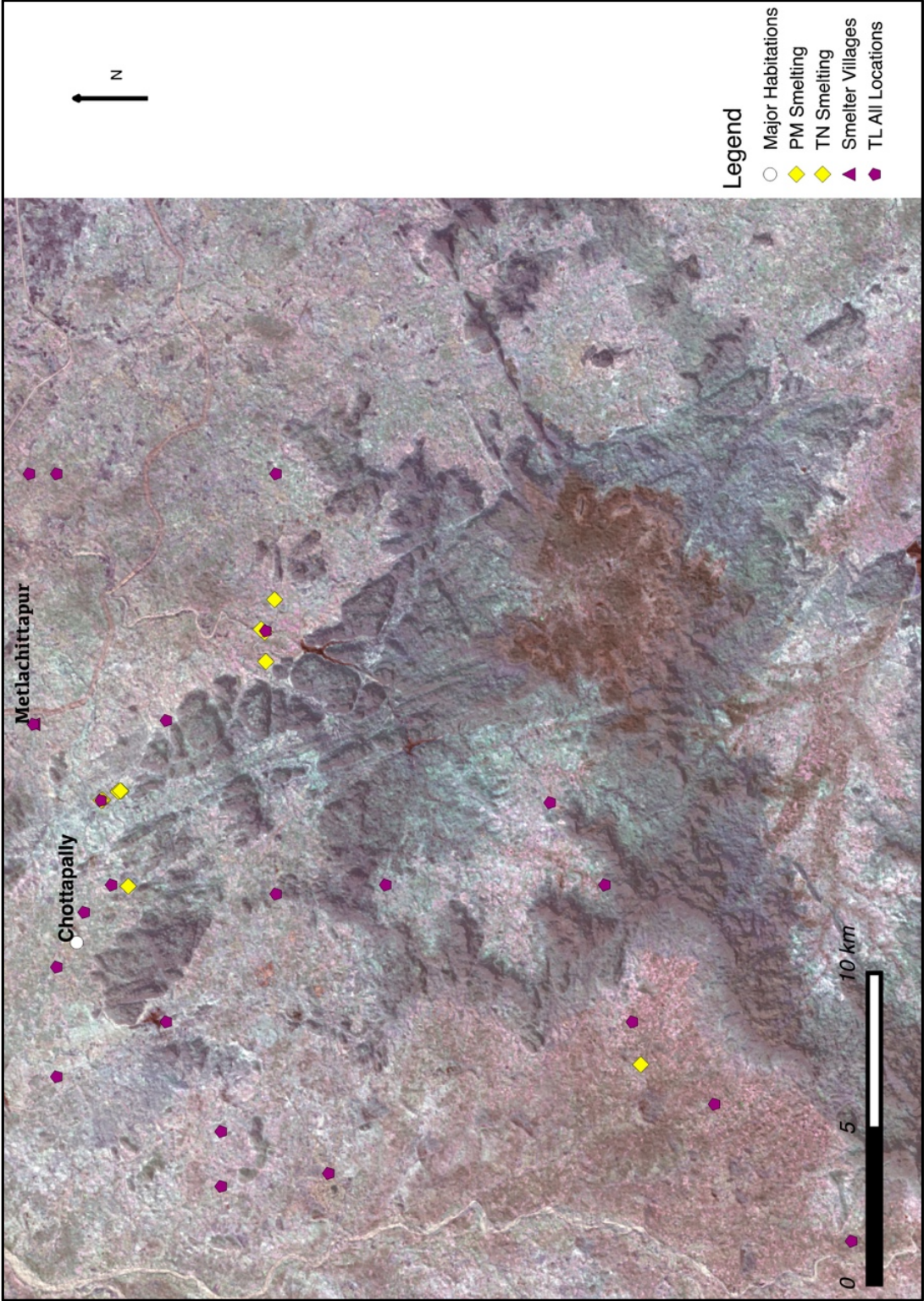


Figure8.51 Iron-smelting sites and Mudda Kammari villages in Cluster 4. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)



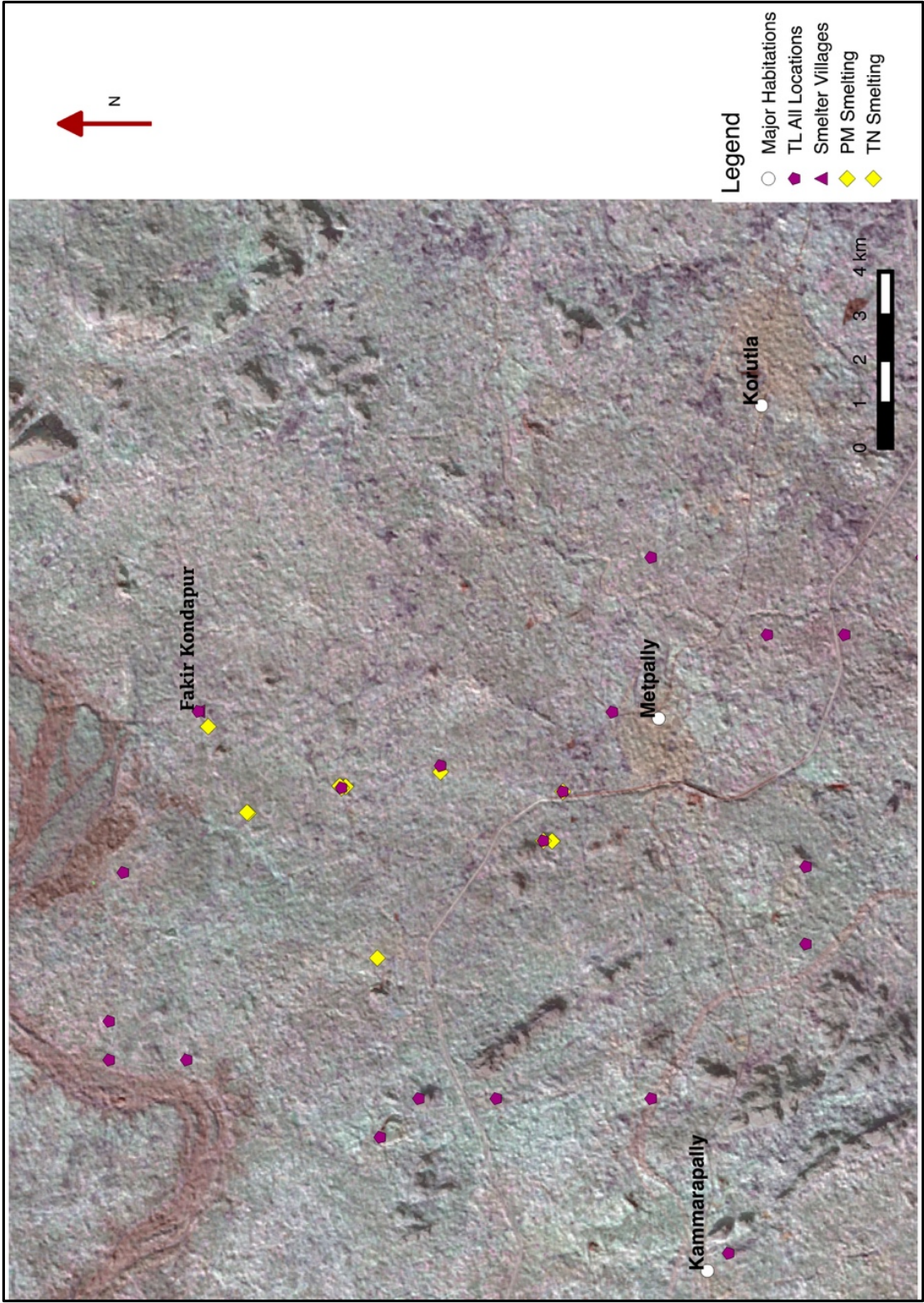


Figure 8.52 Iron-smelting sites and Mudda Kammari villages in Cluster 5. The yellow diamonds represent smelting sites recorded during Pioneering Metallurgy Project and this PhD fieldwork. (Map work by T. Neogi)

This also emphasizes the itinerant nature of the Mudda Kammari in the area, as they might have moved to a new source of magnetite ore after one was exhausted. This migration between ore sources could explain the sporadic scatter of slag heaps in the area. Finally, the distribution of the Mudda Kammari families were constrained by the distribution of ore resources in the landscape, may help explain the marginality and relative invisibility of the smelters in the social space of northern Telangana.

#### 8.4 Discussion

The iron-smelting sites in northern Telangana therefore, can be classified into two broad types, based on their geo-spatial location: the forest sites located in Adilabad, and those situated in the village horizons along the Godavari valley in northern Karimnagar. The common factor connecting these two types of sites is their location in proximity to flowing waterbodies and tanks and their dependence on the monsoon rains and occasional heavy shower during other times of the year. It is evident from the ethnographic data that these flowing waterbodies and tanks played a crucial role in supplying iron-rich magnetite sand to the smelters.

However, the way the *mudda kammari* exploited the streams depended on the topography and the nature of social organization in different parts of the study area. In Adilabad for example, the *mudda kammari* lived a semi-sedentary life until the forest regulations under the Nizam's government forced them to settle down in villages. Based on the archaeological evidence discussed above, and the surviving living memory of smelting discussed in the previous chapter, it is evident that the



*mudda kammari* here were frequently on the move. They moved across the forest terrain to seek out the streams with supply of good quality iron-ore, and spots where the timber for making good charcoal was available. They probably lived in temporary settlements, to which they returned over generations. The knowledge of these settlements, streams and areas with availability of suitable timber for charcoal, were handed down to generations through oral traditions and possible spatial markers like permanent structures and tanks.

Northern Karimnagar, on the other hand, has less forest cover, discontinuous hills and was settled since at least the early medieval period. To ensure proper irrigation, several tanks were excavated in village horizons. These tanks were then interconnected with an intricate network of canals and reservoirs, that collected excess water from the Godavari, and rainwater coming down the low, discontinuous hills in the area during the monsoon. This was then distributed to the tanks in various villages along the landscape. For the village tanks fed directly by the torrents coming down from adjacent hills, as in the case of Battapally-Potharam and Nerella, the magnetite sediments carried by the torrents were exploited by the *mudda kammari* from the junction of the canal and the tanks. If the villages are located further downstream of in this irrigation canal network, the *mudda kammari* had to possibly travel short distances to find suitable torrent to mine the sediments, as may have been the case of Timmapur and Godur.

The iron-smelting sites in northern Karimnagar, are frequently located near the village tanks. While for the villages located in the immediate valley of the hills, this was convenient for collecting iron ore, the smelting sites in the villages where iron

ore was not easily accessible also display this feature. This was probably because the village tanks are normally situated at the edges of the settlements. Iron-smelting activity generated a lot of heat and smoke, and it might not have been convenient to smelt inside the villages. The fringed location of iron-smelting, along with the smoke, dirt and ashes associated with the work, may have contributed to a low social status of the *mudda kammari* community in northern Telangana. Iron-smelting in north Karimnagar, therefore was integrated in the settlements, but its spatial location at the edges of the settlement contributed to the identity of the smelters in the social space.

A majority of these sites in northern Karimnagar and Adilabad do not have any tangible archaeological or ethnographic evidence of direct official control over production, indirect control must have existed through taxation. However, in some villages, like Rangaraopeta and Laxmapur, the local landlords exerted direct control over iron-smelting and the lives of the iron-smelters. As I argued earlier, this was probably because these sites were crucial for the supply of *mudda* made from iron-rich magnetite sand—an important component for producing crucible steel in the nearby production centres of Konapuram and Konasamudram.

# PART B

## IRON-WORKING, SOCIAL SPACE AND DECLINE

## CHAPTER 9

### IRON-WORKING IN SOCIAL SPACE: CHARTING THE DECLINE IN TRADITIONAL BLACKSMITHING IN NORTHERN TELANGANA

#### 9.1 Introduction

After looking at the individual life-stories in Chapter 6, and discussing the technology and the decline of iron-smelting in Part A (Chapters 7 & 8), in this part I will investigate the reasons behind economic hardship and the loss of social prestige within the rural *Viswakarma Kamhari* community of Telangana. First, based on existing academic work, and data available from various official post-Independence government sources and the colonial census documents I will discuss the evolution in land ownership rights, socio-economic changes in rural Telangana and consequent changes in pre-existing prestation relations between the peasant and the rural artisan communities since 1946. That year marked the beginning of a Marxist backed armed peasant uprising in Telangana. This uprising saw the beginning of a trajectory of large-scale changes in the agrarian structure of the region which led to permanently-altered pre-existing power structures in the villages. Scholars consider this uprising to be the predecessor of the mainstream Telanagana movement which culminated into the formation of the new Indian state of Telangana in 2014.

Through a critical appraisal of the existing data and data coming out of my ethnographic research in Telangana, I intend to establish that the rural *Viswabrahmin Kammaris* and their clients were perpetually negotiating and

redefining the power relations that exist between them through the prestation system. I will trace the changing nature of this system from 1946 up to the present day, where prestation relations have permanently ruptured between these two groups. The reasons and effects of these ruptures will be evaluated.

## **9.2 The nature of decline in traditional iron-working in northern Telangana**

Ethnographic data collected from a total of 52 villages of Karimnagar, Adilabad and Nizamabad in the course of my fieldwork reflects the trend of decline in rural iron-working in Telangana (Fig 9.1).

### **9.2.1 Overall trend of decline**

Interactions with the *kammari* families and other villagers in these places revealed that there were a total of 352 active *kammari* families a decade ago. 160 of them have since abandoned their hereditary occupation completely. They have either migrated to urban areas or to the Persian Gulf in search of better livelihoods. In many cases, accessibility to better education meant that it was possible for *kammari* children to acquire higher education and take up permanent jobs in the government and private sectors. Those who have remained in the village have either retired or taken up carpentry, agricultural labour work or other village occupations on a full time basis. Among a 192 blacksmith families who still continue in their hereditary occupation, 96 (50%) of them also work as carpenters. The remaining 50% get their income working only as village blacksmiths. However, due to the opening up of education opportunities in the village through the initiative of the government, coupled with the sharp decline in traditional iron-working, these

*kammari* families are more keen on sending their children to school to ultimately acquire a technical or medical education and move to financially more rewarding occupations. Figure 9.2 displays this change more explicitly. All the first generations on this chart were full time village *kammari*. But the present generation has abandoned blacksmithing either completely, or have a subsidiary profession, either as carpenters or as small agriculturalists.

### 9.2.2 Zonal approach in understanding the decline

In Chapter 4.2.1 I mentioned taking a zonal approach in investigating the socio-economic network of the *kammari* in the study area. Accordingly, the study area was divided into two interconnected zones: Economic and Agricultural. A differential pattern of decline was noticed in these two types of zones in the study area.

#### ***Economic Zone***

The study area in northern Karimnagar and southern Adilabad was divided into two types of Economic Zones (Fig 9.3) based on the accessibility of the villages to urban (UEZ) and rural markets (REZ) in the area (4.2.1). The data collected from the 52 villages distributed across these two Economic Zones revealed an interesting pattern of decline.

It was observed that among the 86 *kammari* families I interacted with during the pilot survey in the UEZ of central and western Karimnagar, 70 have abandoned their hereditary profession of blacksmithing, and are now working in government



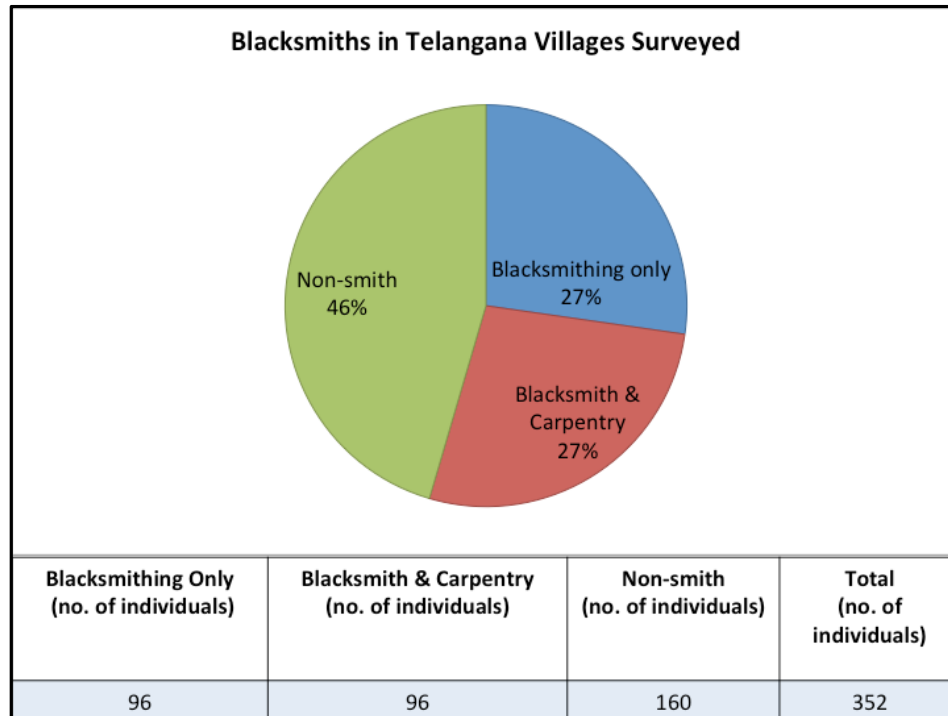


Figure 9.1 The current profession pursued by the male members of the traditional kammari families of the study area (chart prepared by T. Neogi)

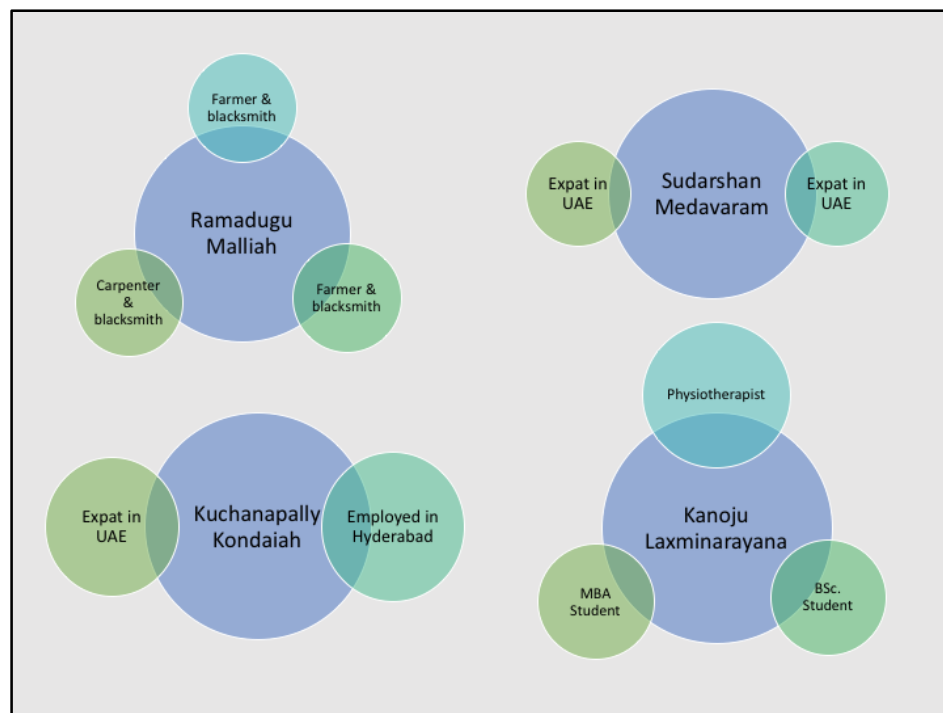


Figure 9.2 Occupation of the sons of some traditional kammari in the study area (chart prepared by T. Neogi)

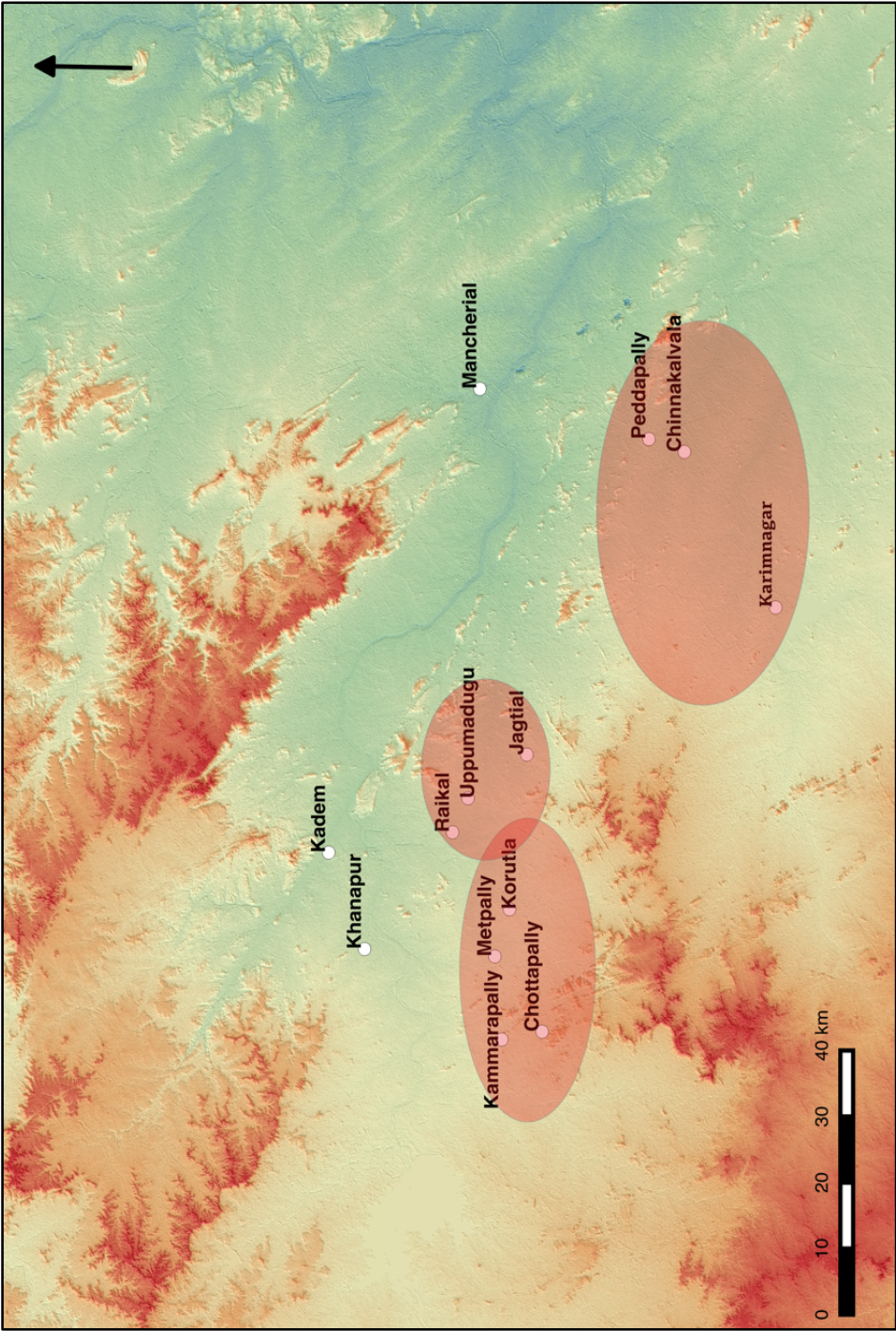


Figure 9.3 The Urban Economic Zones of the study area. Areas apart from the highlighted areas fall in the Rural Economic Zone. (Map work by T. Neogi)



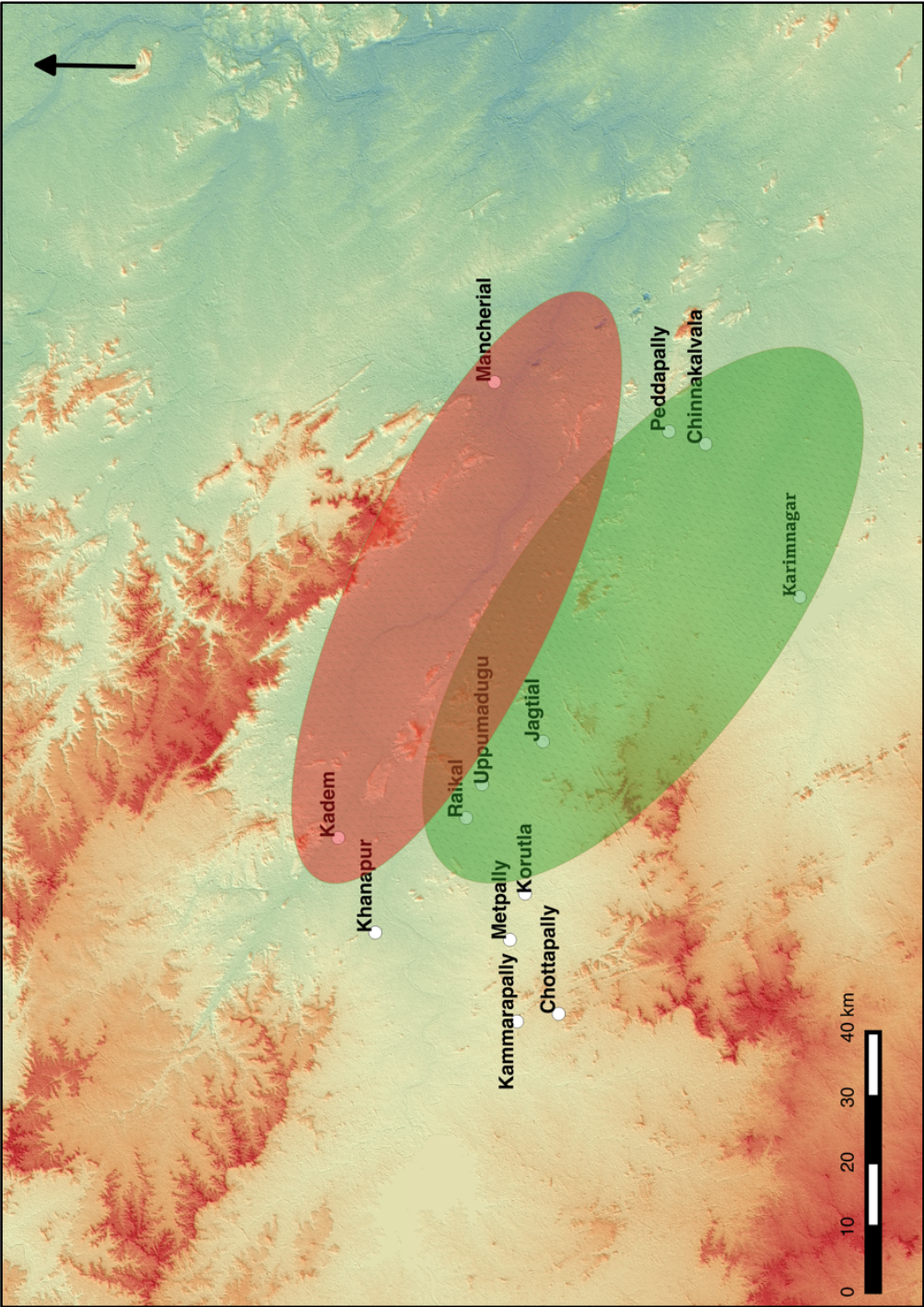


Figure 9.4 The Agricultural Zones. Paddy is the main crop in the zone in green, whereas cotton is the main crop in the zone in red. (Map work by T. Neogi)

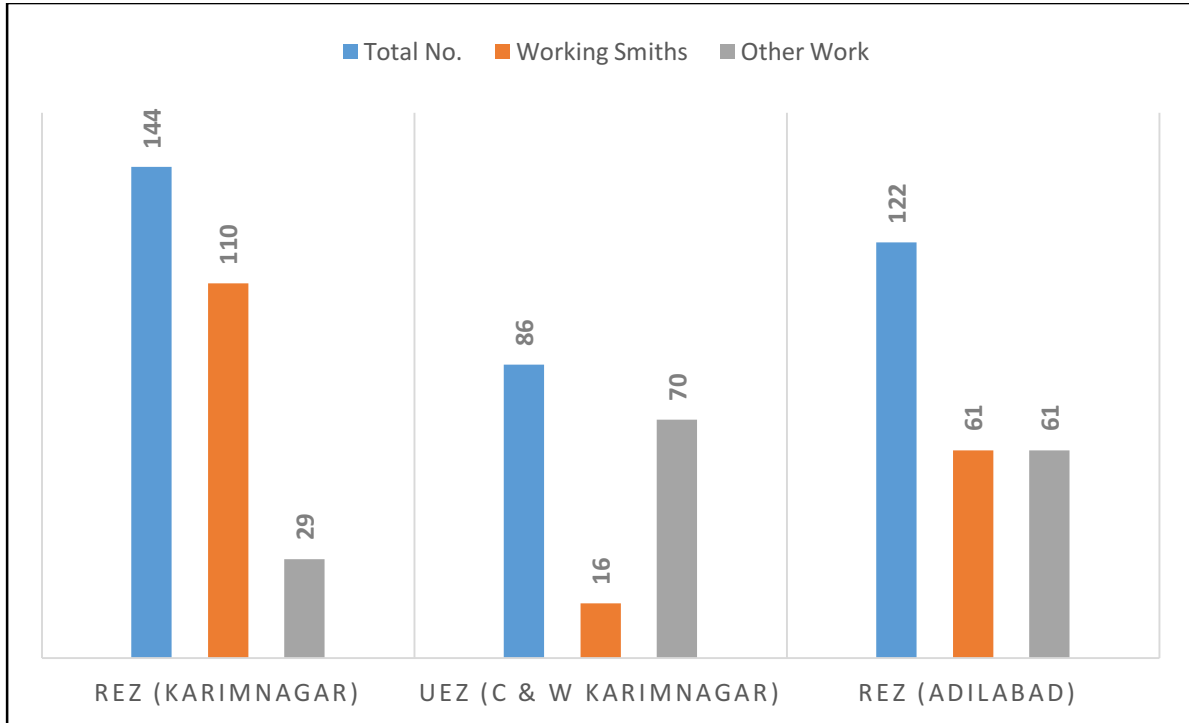


Figure 9.5 The number of kamhari working in their hereditary professions in different Economic Zones (chart prepared by T. Neogi)

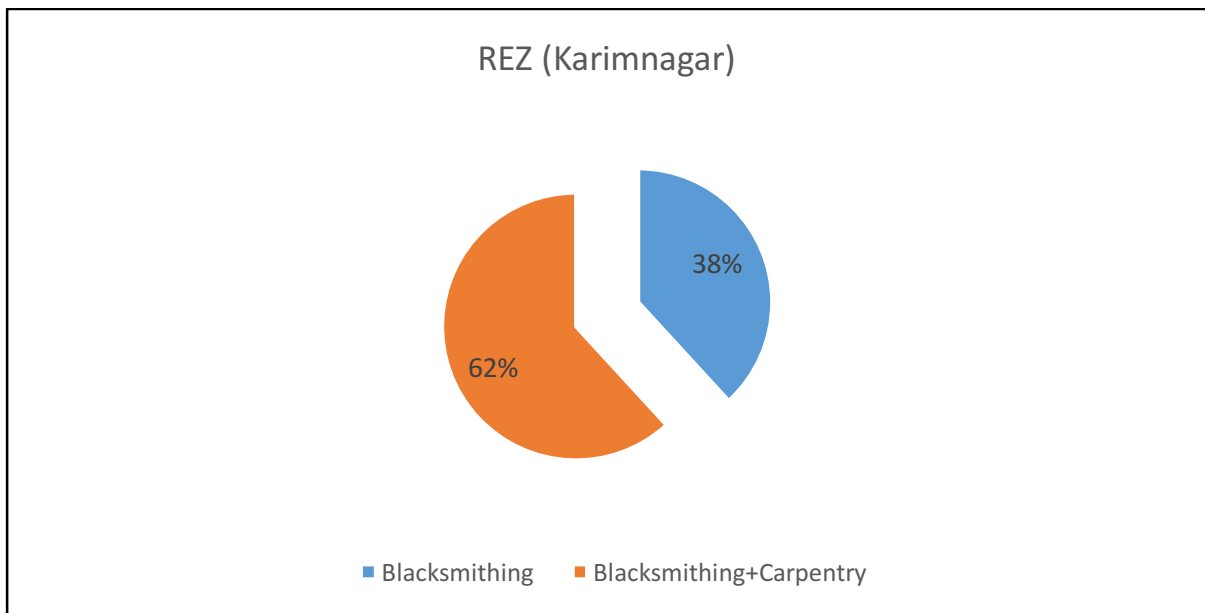
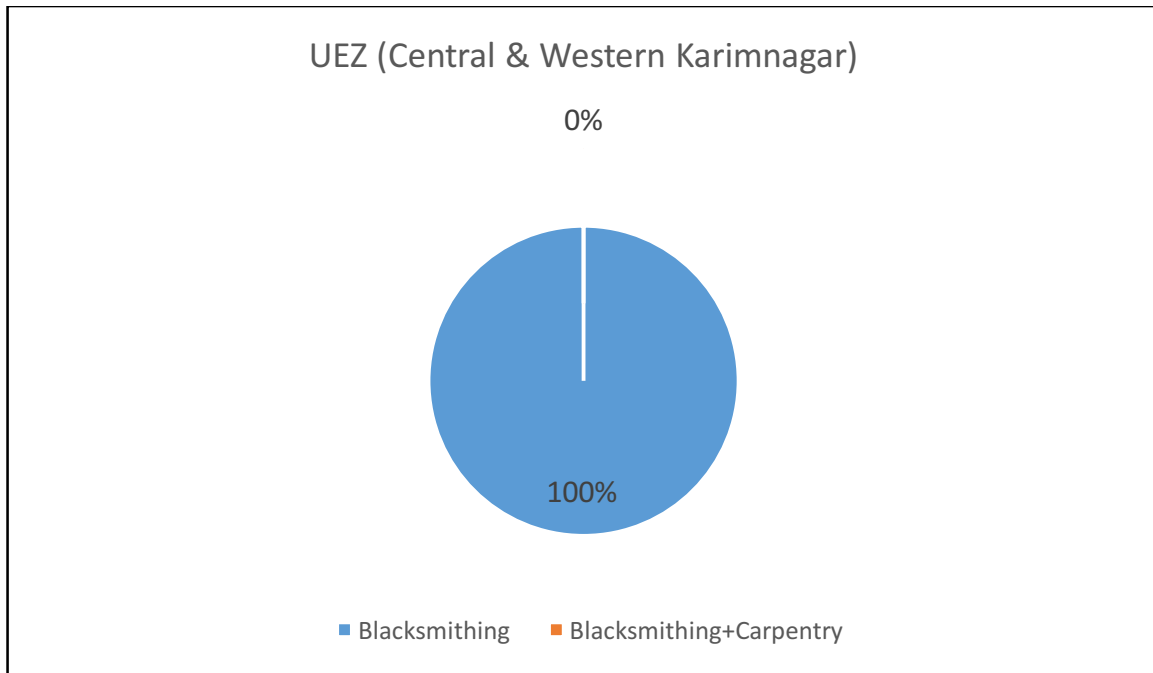
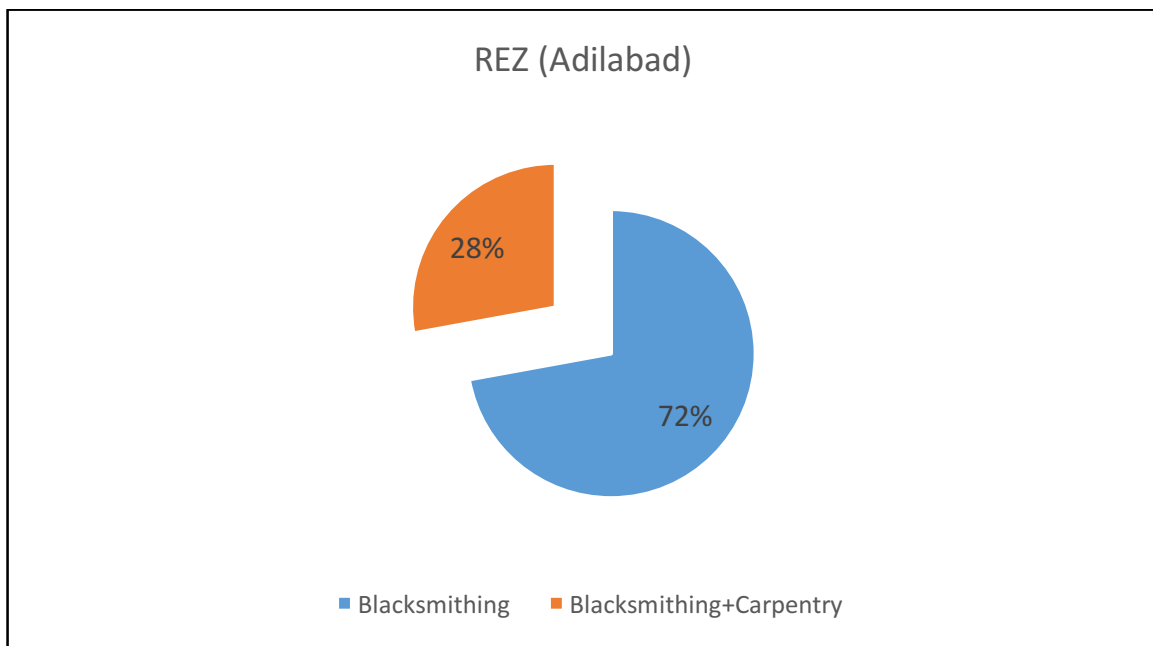


Figure 9.6 Distribution of Full-Time and Part-Time blacksmiths among the kamhari who are still working as blacksmiths in Karimnagar REZ (chart prepared by T. Neogi)



*Figure 9.7 Distribution of Full-Time and Part-Time blacksmiths among the kammari who are still working as blacksmiths in UEZ (chart prepared by T. Neogi)*



*Figure 9.8 Distribution of Full-Time and Part-Time blacksmiths among the kammari who are still working as blacksmiths in Adilabad REZ (chart prepared by T. Neogi)*

services, or running their own small businesses in the towns or beside the highways connecting these towns (Fig. 9.5).

Figure 9.5 also illustrates that more *kammari* families in the REZ of Karimnagar and Adilabad are continuing to work in their hereditary profession, in sharp contrast to the UEZ. Among the 144 *kammari* families recorded in the REZ of Karimnagar during the pilot survey, 110 are still working as village blacksmiths. Among them only 38% work as full-time blacksmiths while the remaining 68% work as both blacksmith and carpenters (Fig. 9.6). In Adilabad, among 61 *kammari* families still working as blacksmiths, 72% work as full-time smiths, whereas 28% combine blacksmithing with carpentry (Fig. 9.8). The disparity in the proportion of full-time and part-time blacksmiths between the REZ of Karimnagar and Adilabad will be explained later in this chapter.

### ***Agricultural Zone***

Apart from two discrete Economic Zones, the study area can also be divided into two agricultural zones based on the cropping pattern (Fig. 9.4). The primary crop in northern and central Karimnagar is rice (paddy; *Oryza sativa*) (Fig. 9.9). Although the primary crop in this area used to be wheat before Telangana (as a part of Hyderabad State) joined the Indian dominion, several government incentives in the cultivation of rice, and the construction of a wide canal network facilitating efficient distribution of rainwater, contributed in turning Karimnagar into the major rice production centre in Telangana. The major crop in the Godavari valley in the northern limits of Karimnagar, and southern Adilabad, on the other hand, is cotton



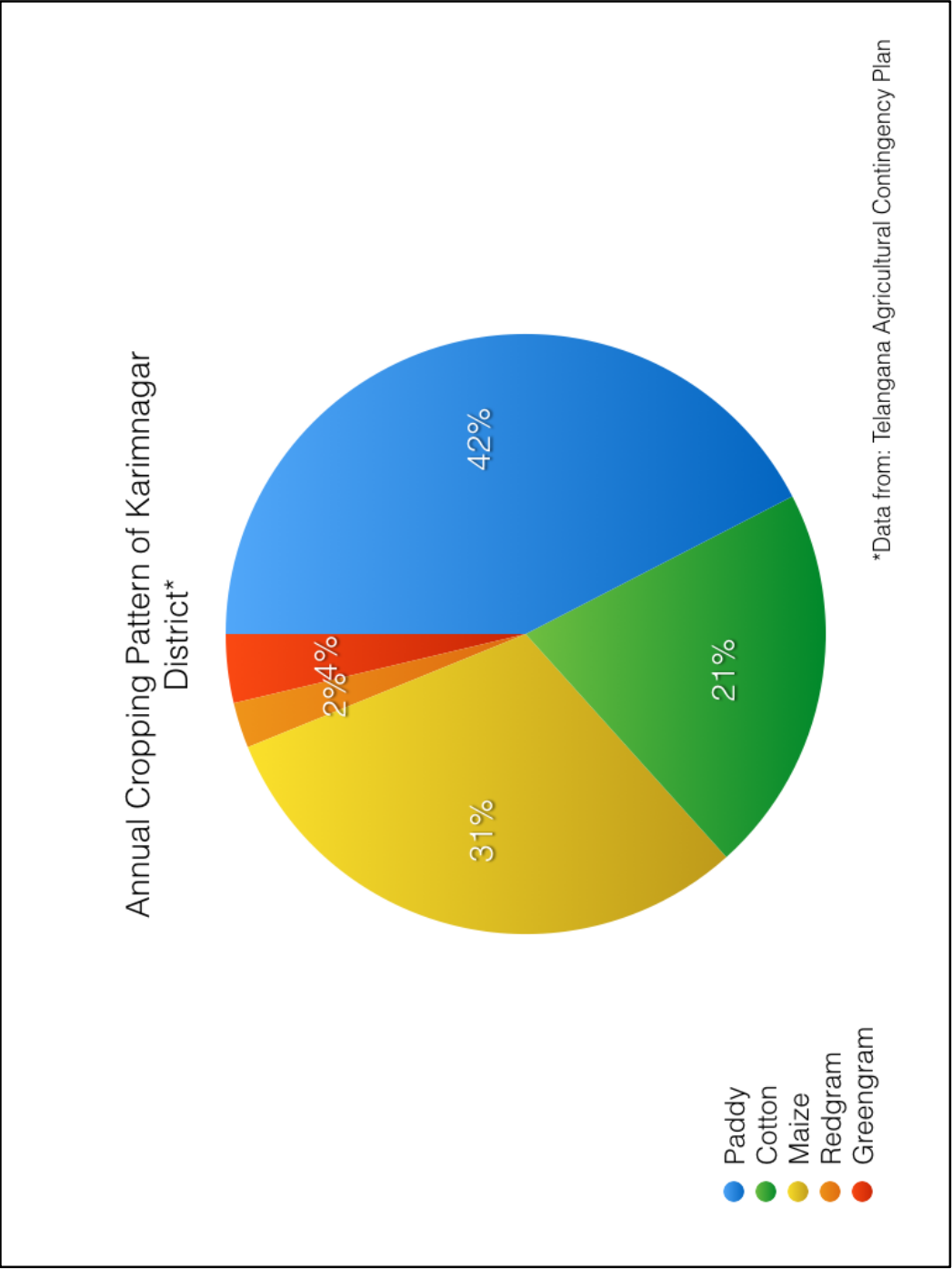


Figure 9.9 The annual cropping pattern of Karimnagar district. (chart prepared by T. Neogi)

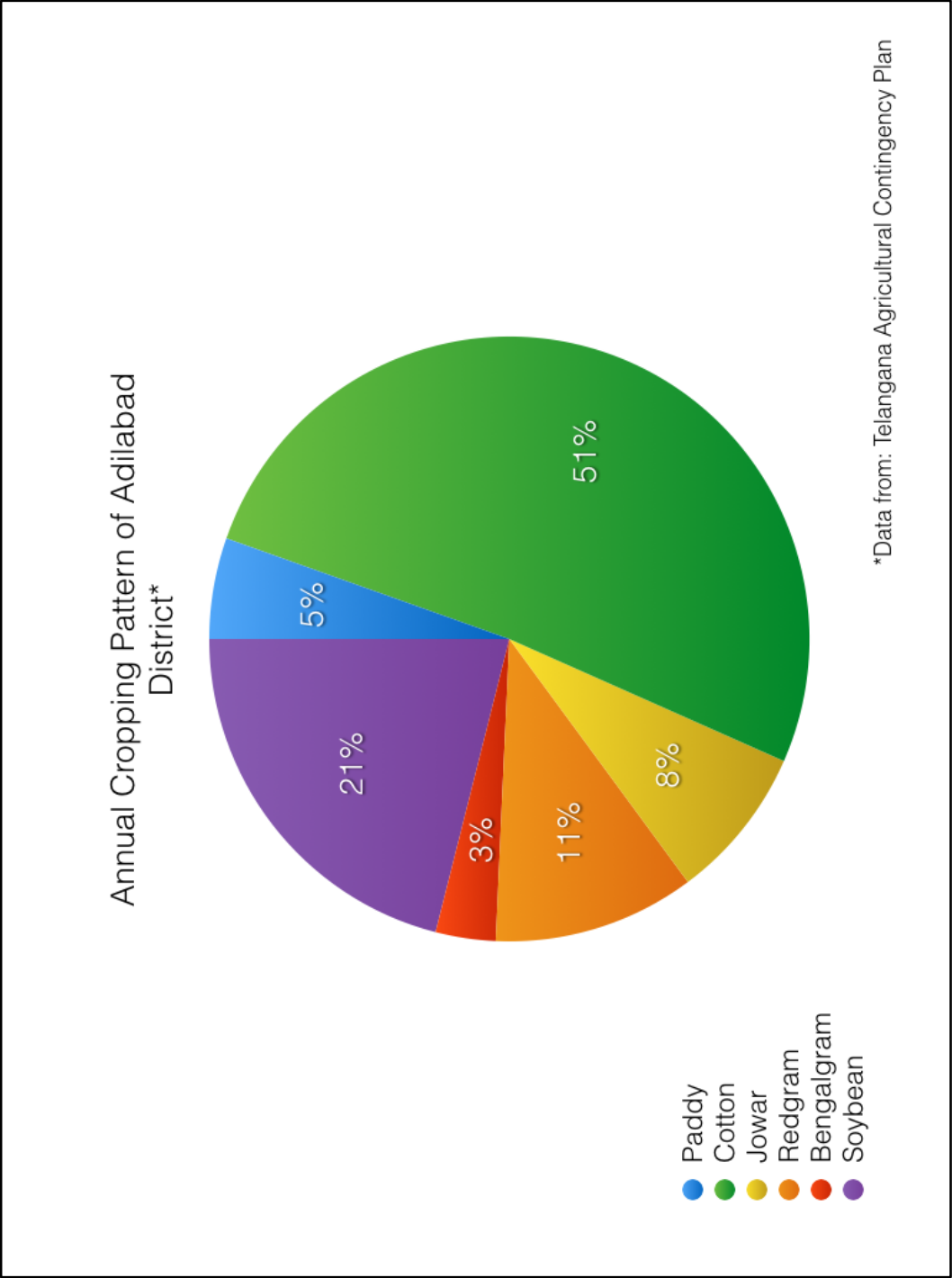
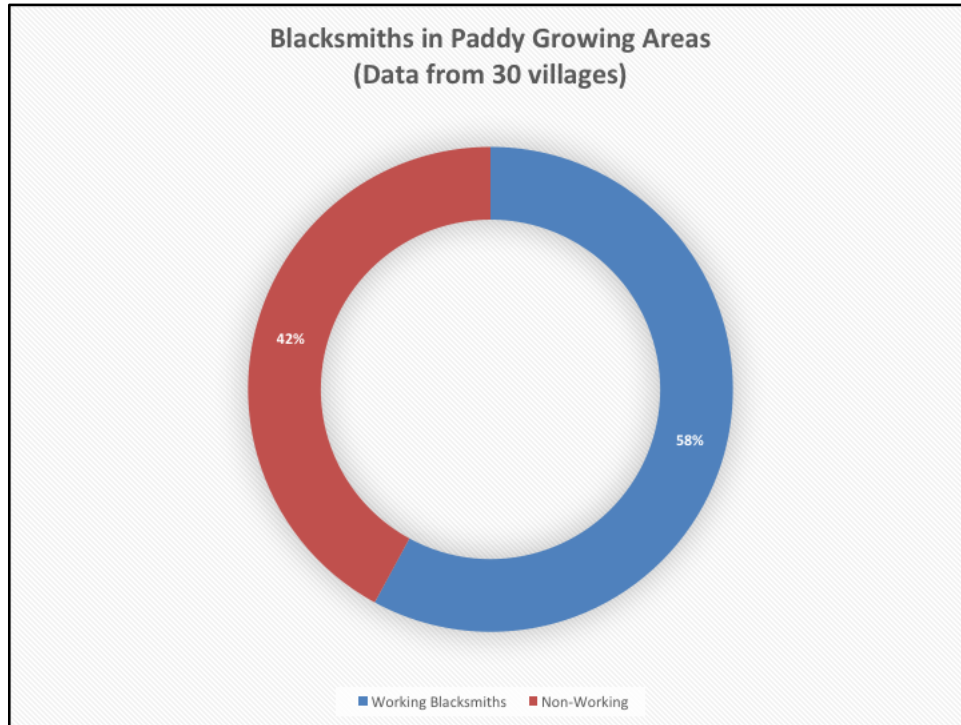
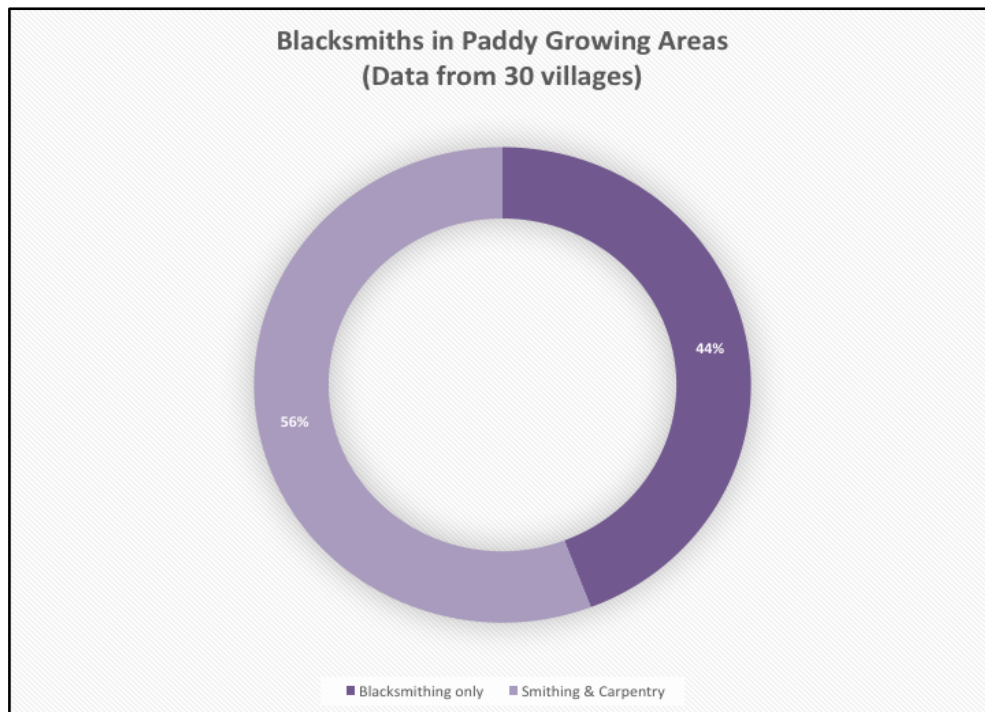


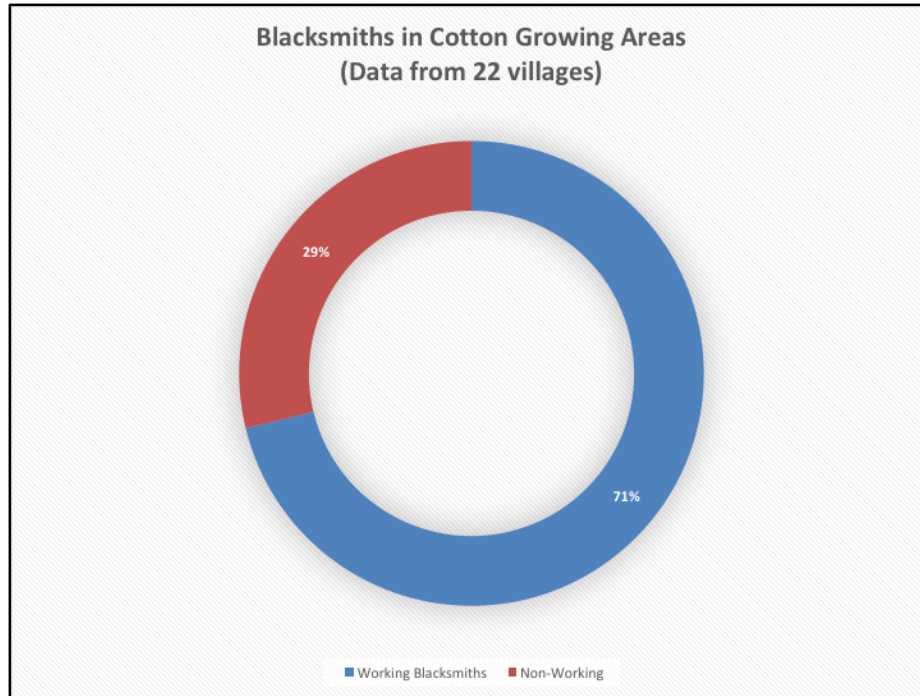
Figure 9.10 The annual cropping pattern of Adilabad district. (chart prepared by T. Neogi)



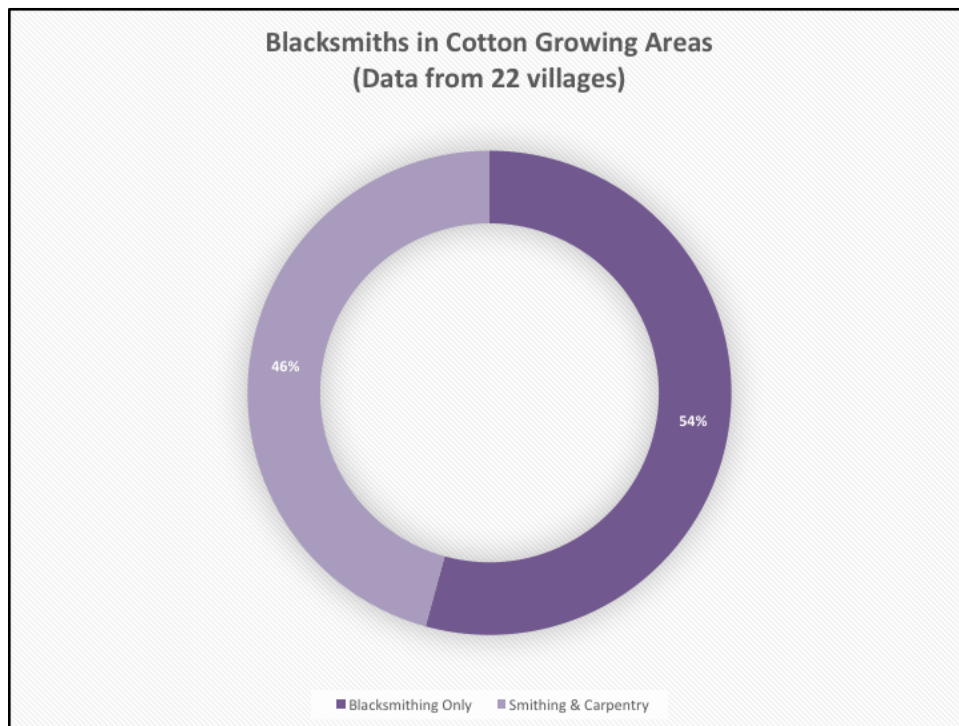
*Figure 9.11 Percentage of working and non-working blacksmiths in primarily paddy growing area of the study area. (chart prepared by T. Neogi)*



*Figure 9.12 Percentage of full-time and part-time craftsmen among the working blacksmiths in the paddy growing zone of Karimnagar. (chart prepared by T. Neogi)*



*Figure 9.13 Percentage of working and non-working blacksmiths in primarily cotton growing area of the study area. (chart prepared by T. Neogi)*



*Figure 9.14 Percentage of full-time and part-time craftsmen among the working blacksmiths in the cotton growing zone of Karimnagar and Adilabad (chart prepared by T. Neogi)*

(*Gossypium hirsutum*) (Fig. 9.10). The fertile, water-retentive black soil deposited on the banks of Godavari after the river floods during the monsoon provides a perfect opportunity for cultivating cotton in this area.

The data collated from 30 villages of the paddy growing zone, and 22 villages from the cotton growing zone in the study area shows significant differences in the number of *kammari* families who are still involved in blacksmithing. While in the paddy growing zone, 42% (Fig. 9.11) of the *kammari* families have completely abandoned their hereditary profession, only 29% (Fig. 9.13) have done so in the cotton growing areas. Among the 58% of the *kammari* families still working as blacksmiths in the paddy growing area, a majority (56%) also work as carpenters, while the rest (44%) continue to work as full-time blacksmiths (Fig. 9.12). For the primarily cotton growing areas, this trend has been somewhat reversed. A majority of the 54% of the *kammari* working as blacksmiths, are full-time in their hereditary trade, while the rest (46%) combine it with carpentry (Fig. 9.14).

### 9.2.3 Interpreting the pattern of zonal decline

From the above data, it can be ascertained that the lives of the *kammari* families have not been equally affected by the decline in the demand for traditional blacksmithing. Although the general picture that this research throws up, is one of decline and displacement of profession and lives of a majority of the *kammari* families, there are pockets where there is still a demand for the services of the *kammari* blacksmiths.

The decline is more acute in the UEZ for a range of factors. A rapidly proliferating urban space in the study area has incorporated the small villages surrounding modern burgeoning towns within the urban landscape. This also includes encroachment over the agricultural fields of these small erstwhile villages which have now been purchased from the farmers and transformed into built urban space. The resulting disappearance of agrarian hinterland of these growing cities, such as Siddipet, Karimnagar, Jagitial and Metpally resulted in a loss of clients for the *kammari* families. Apart from this, the development of roads connecting these cities and towns with small nearby smaller villages facilitated better accessibility to urban markets. The farmers and others in the villages, who were traditional clients of the *kammari* are now able to purchase industrially-produced iron implements for household use, in cheap from these urban markets. Improved road connectivity also enabled the urban *shisha kammari* to travel with ease through these villages before the monsoon and offer their services to the farmers to forge new agricultural implements, against a very affordable cash payment. The farmers, therefore have started opting for the comparatively cheap services of the *Shisha Kammari*, abandoning the traditional prestation arrangement with the *kammari* families, as they prefer to pay cash on a piecework basis over paying with a traditionally-determined portion of their harvest each year to the *kammari*.

The villages in the REZ which are either situated further from the cities, or do not have easy road access to urban markets have somewhat preserved the hereditary profession of the *kammari* families. The more remote a village is situated from access to the UEZ, the more *kammari* families are observed to be involved in full-



time blacksmithing. The villages in Adilabad are cases in point (Fig. 9.8). Unlike Karimnagar, Adilabad district is comparatively less populated and the urban centers are more sparse in the landscape, which is interspersed with dense reserved forest areas. Therefore, the accessibility of Adilabad villages situated inside the forest to the urban areas is restricted by their remote location and lack of road network. This has helped in keeping the traditional *kammari* families in full-time business in the majority of these villages.

Apart from the accessibility to urban markets, the cropping pattern in northern Karimnagar and southern Adilabad has affected the lives and the professions of the *kammari* families differently. Rice-paddy and maize are the main crops of Karimnagar (Fig. 9.9). In order to increase production and minimize labour in production of these crops, a majority of the farmers have abandoned the plough for mechanized farming, weeding and harvesting equipment like tractors. This shift to machines means that the *kammari* lost their main source of income, which primarily depended on forging and repairing agricultural implements for their farmer clients. Apart from occasional forging contracts and repairs of iron implements, therefore, a majority of the *kammari* who still work as blacksmiths, have also taken up carpentry to provide furniture, doors, windows and other household needs for the village. Cotton, on the other hand, is the major crop in Adilabad (Fig. 9.10). According to the local cotton farmers and blacksmiths, tractors cannot be used effectively for sowing, weeding and harvesting cotton fields. Therefore, the cotton farmers of Adilabad and the northern boundary of Karimnagar, along the Godavari

valley, have not made the shift to mechanized agricultural implements, keeping the *kammari* families in full-time business in a large number of villages studied.

### **9.3 Contextualising decline in rural traditional blacksmithing in northern Telangana**

Four of the five blacksmith lives described earlier in this thesis (Chap 6.4) portray a picture of steady decline in village iron-working industries in northern Telangana. In contrast *shisha kammari* Ravi's (6.4.5) business as an itinerant, market oriented urban blacksmith is thriving. These lives are not unique. They represent a general trend in reorganization of old village socio-economic systems in the face of advancement of technology in agriculture and the ever-growing influence of urban market forces in this region. During three seasons of ethnoarchaeological fieldwork in Telangana I heard repeated contrasting accounts of despair in loss of old clientele and a secure way of life from the *mudda kammari* and the *kammari* on one hand, and clear optimism about a better way of life from the *shisha kammari*. The above discussion (9.2) was an attempt to statistically represent this decline by taking a zonal approach. In the sections below, I attempt to understand this decline and displacement of the lives of the *kammari* communities in the wider historical and socio-economic-political context of northern Telangana.

#### **9.3.1 The traditional rural prestation system in northern Telangana**

The primary reason behind these contrasting scenarios of despair and hope could be found in the evolving nature of the land ownership system and prestation network in the region.

***Prestation system in colonial narratives***

The relative isolation and self-sufficiency of Indian villages has been a major area of academic interest among colonial officers, anthropologists and orientalist scholars since the 19<sup>th</sup> century. Already as early as 1830 the idea of self-sufficiency of Indian villages found voice through Sir Charles Metcalfe:

“The village communities are little republics, having nearly everything that they want within themselves, and almost independent of any foreign relations. They seem to last where nothing else lasts. Dynasty after dynasty tumbles down; revolution succeeds to revolution; Hindoo. Pathan, Moghul, Mahratta, Sikh, English. Are all masters in turn, but the village communities remain the same. In times of trouble they arm and fortify themselves: a hostile army passes through the country: the village communities collect their cattle within their walls and let the enemy pass unprovoked. If plunder and devastation be directed against themselves, and the force employed be irresistible, they flee to friendly villages at a distance; but when the storm has passed over, they return and resume their occupations. If a country remains for a series of years the scene of continued pillage and massacre, so that the villages cannot be inhabited, the scattered villagers nevertheless return whenever the power of peaceable possession revives. A generation may pass away, but the succeeding generation will return. The sons will take the places of their fathers; the same site for the village, the same positions for the houses, the same lands, will be reoccupied by the descendants of those who were driven out when the village was

depopulated; and it is not a trifling matter that will drive them out, for they will often maintain their post through times of disturbance and convulsion, and acquire strength sufficient to resist pillage and oppression with success.”

(Metcalf, 1832:470-471)

This view was later taken up by the census general report of British India, Indian villages were described as self-sufficient watertight compartments, resistant to economic and social transformations from external forces (Risley and Gait, 1903). The idea of self-sufficient village republics in India was taken up by Maine (1895) and reinforced by Marx through his thesis on the Asiatic Mode of Production (Marx and Engels, 1950 [1870]). Buchanan (1807), and the General Reports of Colonial Censuses between 1881 and 1911 (Plowden, 1883, Baines, 1893, Risley and Gait, 1903, O'Malley, 1913,) noted the existence of a tradition regulated prestation system in the village among different professional groups:

“In the Report for 1901 attention was drawn to a peculiar feature of Indian life. Until the recent introduction of western commodities, such as machine made cloth, kerosine oil, umbrellas and the like, each village was provided with a complete equipment of artisans and menials, and was thus almost wholly self-supporting and independent. Chamars skinned the dead cattle, cured their hides and made the villagers' sandals and thongs. Local carpenters made their ploughs, local blacksmiths their shares, local potters their utensils for cooking and carrying water, and local weavers

their cotton clothing. Each village had its own oil-pressers, its own washermen and its own barbers and scavengers, Where this system was fully developed, the duties and remuneration of each group of artisans were fixed by custom, and the caste rules strictly prohibited a man from entering into competition with another of the same caste. The barber, the washerman, the blacksmith, etc., all had their own definite circle within which they worked; and they received a regular yearly payment for their services, which often took the form of a prescriptive share of the harvest, apportioned to them when the crop had been reaped and brought to the threshing floor.”

O'Malley (1913:408)

The prestation system became the primary focus of academic anthropological enquiry through Wiser's (1936) seminal work on the traditional village system of exchange, which he termed as *Hindu Jajmani System*. Here, based on a study of several village communities in India, he came to the conclusion that the existence of *Jajmani* system is what made Indian villages economically secure units, resistant to change from outside market forces based on a pre-determined traditional dictated system of exchange of agricultural products and division of labour reinforced by the caste system.

### ***Colonial Census enumeration of iron-working groups in the Hyderabad State***

But when Wiser was writing about the lack of change in economic relations of village society, the census enumerators were noticing spectacular transformations taking place in village systems. Since the 1920s, Census Reports mention a major decline in village industries faced with competition from cheap industrially-produced items that had started reaching the villages owing to improved railway connectivity. In the General Report of the 1931 Census of India, Census Commissioner Hutton (1933) unequivocally noted a departure from hereditary caste occupations among those who were involved in different village industries:

“General examination of the castes tabulated by occupation enables the position be roughly summarized as follows: In the majority of cases, about half the males tabulated retain their traditional occupation and varying number up to, but rarely exceeding, a quarter, have other subsidiary occupations. About a quarter or less of the half that have abandoned their hereditary occupation as their principal means of subsistence, retain them as subsidiary.”

Hutton (1933:296)

As a reason behind this disintegration, Hutton showed that most of those abandoning their hereditary occupations have either become agriculturalists and enhanced their economic and social status in the village, or had taken up work in urban industries or had access to education which consequently led to financially more rewarding and prestigious government jobs (Hutton, 1933:296-297).



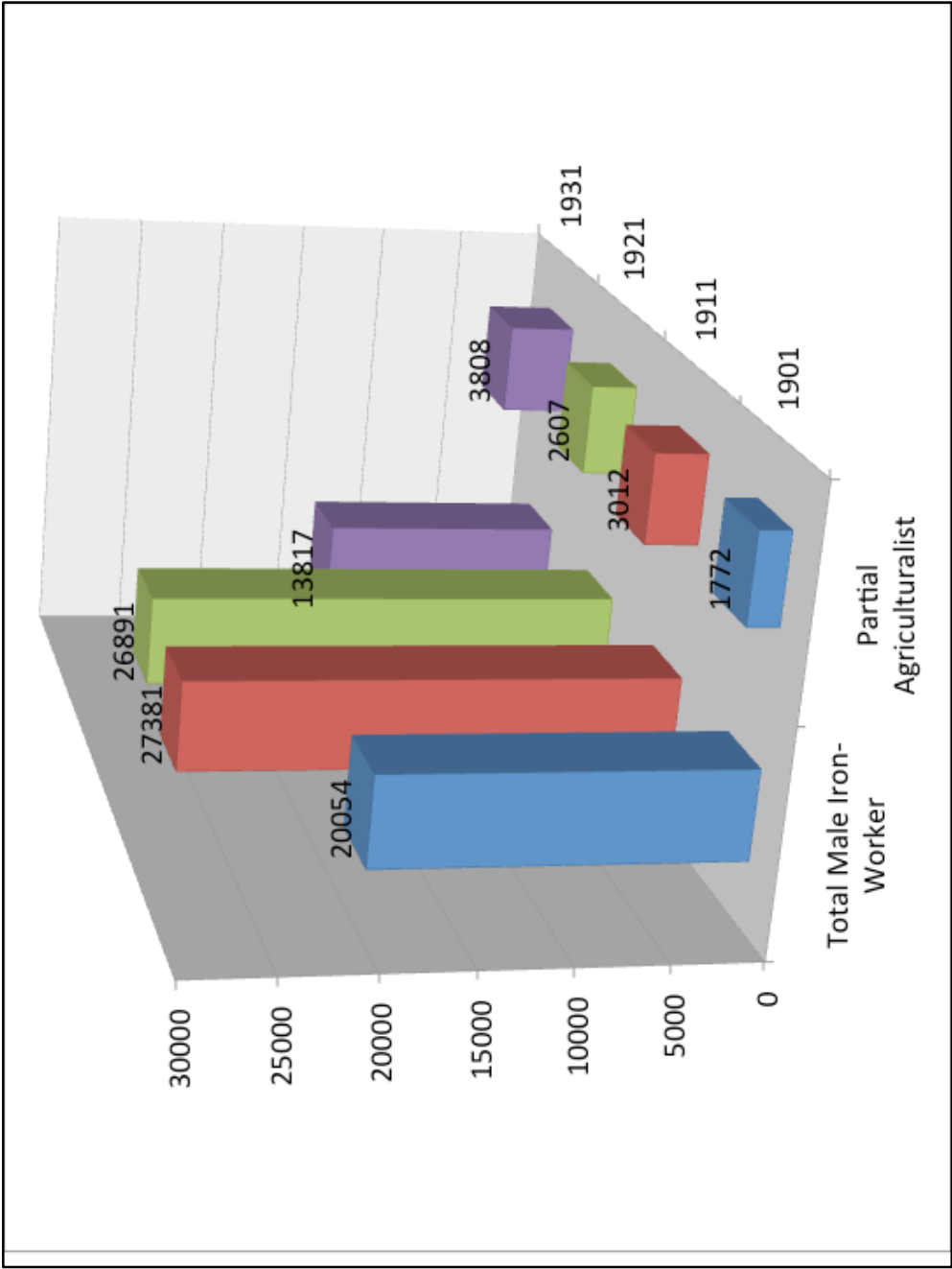


Figure 9.15 The ratio of “partial agriculturalists” among the total number of rural iron-workers in Hyderabad State (based on data from 1901-1931 Hyderabad State Census Report)

Figure 9.15 is a reflection of this trend in the case of rural iron-workers in Hyderabad State<sup>8</sup>. Since women are traditionally not permitted to work as blacksmiths among the *kammari*, only the number of males is considered here to ensure maximum possible reflection of rural demographic situation during these years. The colonial censuses in this period had considered the female members of the iron-working families to be iron-workers by default, without interrogating the tradition regulated gender dynamics of the profession.

From the 1901 census onwards, the number of people partially engaged in agriculture started to be enumerated. In Hyderabad State, the number of male iron-workers<sup>9</sup> who were partially engaged in agriculture increased from 8% in 1901 to 27% in the 1931 census (Hutton, 1933, O'Malley, 1913, Risley and Gait, 1903, Marten, 1923). Simultaneously, the number of individuals recording iron-working as their primary occupation decreased from 27,381 to 13,817 between 1911 and 1931. However, the number of individuals who registered iron-working as their primary occupation increased by 36% percent between 1901 and 1911. Apart from irregularities in methods of enumeration between these two censuses, this increase can be explained by the fact that due to the imposition of colonial forest laws (chap 7.3.2) and ever-growing importation of industrially produced cast iron and steel to India displaced regional pre-industrial iron smelting and steel making. The *Statistical Abstract Related to British India no. 48* records a 121% increase in

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<sup>8</sup> The present research area was under the jurisdiction of the Nizam of Hyderabad and constituted the princely state of Hyderabad. Since there are irregularities in compiling district-wise data on behalf of the enumerators, the overall state totals are used.

<sup>9</sup> Iron-workers in the census include rural blacksmiths, urban blacksmiths, and workers in hardware forging workshops, but not workers in iron and steel industries.

imported cast iron and steel from England into British India between 1903 and 1913 (British Indian Government, 1840-1920) (Fig. 9.16). Consequently the iron-smelting groups, such as the *mudda kammari* took up full-time work as village blacksmiths and identified themselves as such to the census enumerators. Although iron-smelting (or iron-manufacture) has been recorded as a distinct occupation group in the 1881, 1891 and 1901 censuses, it vanishes as a distinct occupational category in subsequent censuses, pointing to the decline in indigenous smelting across India. As early as the 1891 census Commissioner Baine recorded a decline in smelting in the Census General Report:

“The iron smelters are found in some of the Hill tracts of the Panjáb the Central Belt, and the Gháts of Bombay. They are a small and scattered community. The gold washers, too, are very low in both numbers and rank.”

(Baines, 1893:198)

### ***Traditional prestation system in Telangana***

The primary cause behind this decline is the breakdown of the pre-existing tradition regulated prestation system between the blacksmiths and their client agriculturalists. This rupture is brought about by several historical developments since the mid-20<sup>th</sup> century. But before examining the decline, it is essential to understand the system of prestation that exists in Telangana.

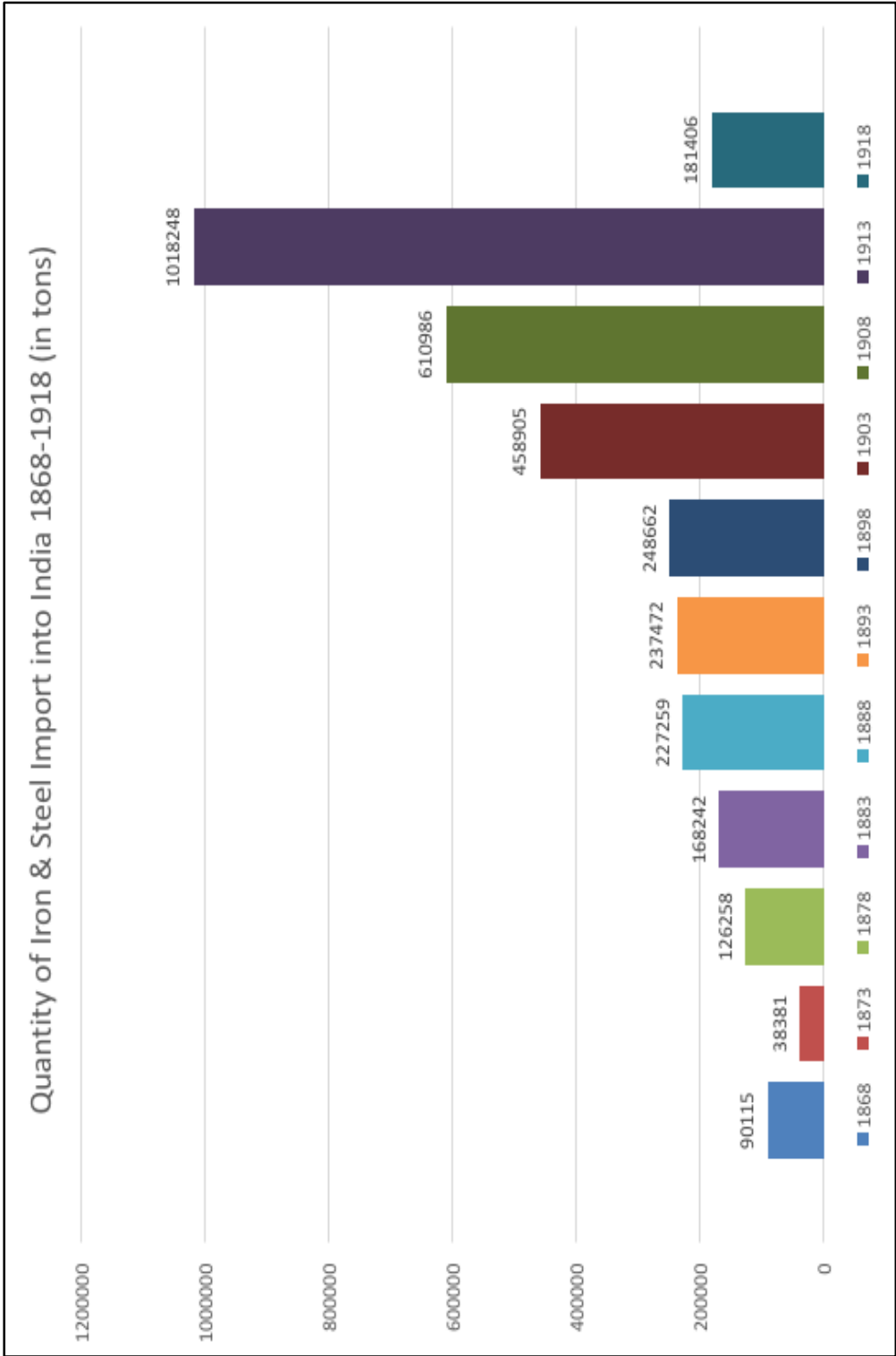


Figure 9.16 The quantity of iron and steel imported to India from England between 1868 and 1918 (Data from *The Statistical Abstract Related to British India*, No.1-55 ).



*Figure 9.17 A kammari attaches an iron share to the plough as his client farmer helps him. The farmer had the wooden plough made by a wadla who, like the kammari, has served his family for the last 2 generations (taken by the author)*

In this system, a *kammari* was bound by convention regulated oral contracts with a number of farmer families in the village. The blacksmith (Fig. 9.17) was responsible for forging as many agricultural implements his clients wanted in the course of a year, and his clients were required to honour their part of the contract by paying the family blacksmith a certain predetermined amount of rice-paddy or maize (normally one metric quintal) from their harvest for each ploughshare forged (Appendix 1). So if a farmer family had two ploughshares forged then they will have to pay an additional quintal of their harvest. After setting aside a part of the given harvest for

his family, the *kammari* would sell the surplus in the weekly village markets or to the *Sahukar* (middlemen) for cash which was used to pay for other household expenses. Cash payments were generally accepted by *kammari* from the clients who produced cash crops such as cotton or are from toddy-tapper (*Gauda*) communities. The farmers also brought scrap iron and charcoal for the blacksmiths to forge their implements and household iron items that they needed over the course of the year. To ensure smooth operation of this system, the farmers could only withdraw their business from their family blacksmith after paying a hefty compensation, which was determined by a traditional council of senior blacksmiths in the village. The blacksmiths were also not allowed to provide services for anyone other than their traditional client families. It was also considered ritually unclean for a *kammari* to sell the items they forged, in the urban or rural markets for cash. This relationship also existed between client farmers and families of *wadla* (carpenters), who forged the wooden ploughs and handles of other agricultural implements.

The prestation relationship ensured economic security of the *kammari*, *wadla* and the farming families of a village. But it also had a much larger social role to play in the village context— it was central in keeping together a complex network of power relations among these three communities where none of these groups could emerge as a superior patron and as dependent client. For a farmer, agriculture cannot take place if a *kammari* and a *wadla* refused to forge tools for him. On the other hand, a *kammari* will struggle for subsistence if he had not forged implements for his clients and received food grains to provide for his family.



Disputes were resolved by a caste-association of elders. Threats of excommunication from the village community and imposition of steep compensation by local village caste-associations ensured that power relations maintained a relative status quo. However, having a convention dictated system in place did not ensure its stability. The idea of eternal stability and permanence of the *Jajmani* system is central to the perception of unchangeable self-sufficient village republics found promoted by Wiser (1936) and his colleagues but in reality, the relationships of power regulated by the prestation system do not function like clockwork. The power relations are negotiated on a regular basis, and expressed through symbolic performances.



*Figure 9.18 A client farmer gives rice and other ingredients of a full meal to a member the Kammari family during Ugadi.(Pioneering Metallurgy 2010)*

In Telangana, *Ugadi* or New Year takes place in late March or early April, as a celebration of the harvest. During this time, the *Viswabrahmin* craftsmen, including the *kammari*, stop working for a week and worship their smithy and their implements to re-infuse them with divine power in expectation of a better business in the coming year. When work at the smithy resumes after seven days, the *kammari* are required to forge and send at least one tool connected with agriculture to each of his client families in the village. In return, the each farmer has to send back ingredients for a full meal for the *kammari* and his family (Fig. 9.18) (Neogi and Jaikishan, 2011). This seemingly small symbolic performance is of major significance in terms of re-negotiating power relations through the system of prestation. By sending an implement related to agriculture, a *kammari* expresses his willingness to provide for the needs of his client families. The farmer on the other hand sends their symbolic promise to honour the conventional contract by providing ingredients like rice, turmeric and pulses for the *kammari*'s household. The *kammari* can choose not to send implements to a client family. In that case either the terms of contract (mostly in regard to payments), had to re-negotiated or the farmer is free to seek services of other *kammari* families within the village. Similarly, a farmer can choose not to accept the implement sent by his *kammari*, and can dictate fresh terms of contract or can abandon his family *kammari*. This is explained in detail in the following chapter. It is important to note that it is always the blacksmith who takes initiative to start this symbolic negotiation. The farmers do not send their plate of food first.

*“That will not be acceptable. We need to send first.”*—said Kalluri Ramesh of Rechapally while telling me about these rituals.

This is a symbolic gesture of power through which the blacksmiths reiterate that the farmers need their skills to facilitate cultivation in the coming year. The farmers’ gesture is therefore a counter statement of power—the *kammari* can only sustain if they pay them with a part of their harvest. The *kammari* families and the farmers both claimed their superiority over the other and until recently, were locked in a perpetual stalemate of power struggle. These mutual checks and balances in power were instrumental in holding the traditional prestation system together. Significantly the rupture in this traditional prestation system has also affected the symbolic gestures connected with it. This tradition has almost vanished in Karimnagar and Adilabad, apart from a few pockets where the conventional prestation networks are still operational.

The evolution of the nature of traditional prestation systems have been studied extensively in different parts of India by scholars such as Benson (1976), Good (1982), Karanth (1987), Miller (1986), Sahay (2004), Lerche (1993), Beidelman (1959) and Gough (1960). All these studies, especially that of Lerche (1993), documented a decline in old tradition regulated prestation systems. However, the reasons behind the decline have not been fully investigated. Benson’s (1976) study of the *Jajmani* system in a village in Medak district recorded different types of traditional relationships that existed among the different castes in the village. She classified these relations into five distinct groups:

1. Semi-annual grain payments to specialists engaged on a permanent basis.
2. Payment of cash or grain on a piecework basis to a specialist permanently engaged.
3. Exchanges of services particularly by artisans.
4. Payment of cash, grain or both on a piecework basis to any specialist.
5. Payments made for ritual services.

### **9.3.2 Factors leading to the decline of the traditional prestation system**

For the *Kammaris* and the *Wadlas*, receiving semi-annual grain payment seems to be the norm in my study area. However, it is presently largely replaced by the payment in cash on a piecework basis. The evolving nature of Telangana's land tenure rights since the early 20<sup>th</sup> century, along with a lopsided approach in implementing the strategies of "Green Revolution" in agriculture and unplanned commercialization of agricultural products caused by a move towards liberalization of economy in Andhra Pradesh in early 1990s were primary factors behind the disruption of pre-existing power structures in rural Telangana.

### ***Evolution of land-tenureship in Telangana since the early 20<sup>th</sup> century***

Ownership rights over agricultural land and the land revenue system in Hyderabad State was distinct from British administered areas of India in the early 20<sup>th</sup> century. There were three different types of land revenue system operational in Hyderabad State at that time (Kumar, 2007)—

1. *Diwani or Khalsa system*: In this system the ownership rights of lands remained with the peasants and they paid annual revenues directly to the state. The terms are negotiated between the state and the peasant without the presence of any intermediary.
2. *Jagirdari system*: In this system, the collection of land revenue depended on a Jagirdar (or a feudal lord) who was granted large portions of land by the state. The jagirdar collected revenue from his tenants and, after keeping a portion of the revenue for himself, paid a stipulated amount every year to the royal exchequer.
3. *Saraf-i-Khas system*: There were a number of lands the revenue from which went directly to pay for the personal expenditure of the Nizam and his household.

These systems were influenced by Mughal land revenue systems and required a strong and clear central leadership to hold them together. However, the Nizam had started losing his hold on administration from the late 19<sup>th</sup> century, leading to a sinister concentration of power in the hands of the *Desmukhs* (also known as *Dora*), who were granted ownership and revenue collection rights over large amounts of agricultural land (Sundarayya, 1973d, Elliott, 1974). Under *Jagirdari* systems, the main social base of the Nizam's state were the *Deshmukhs* who were awarded *Jagirs* ranging from hundreds of acres to even a hundred-thousand acres of land. Often this land included more than one village. For example, in the case of Vishnur Deshmukh, an oppressive landlord, the *jagir* consisted of 40 villages. The *Deshmukhs* comprised of upper caste landlords from Brahmin, Reddy and Velama Communities. They instituted a system (*Vetti* system) of employing bonded

agricultural labour from the lowest castes to work their lands without any payment. They also extended credits for their farmer tenants on unfavourable terms resulting in exploitation for non-payment (Kumar, 2007:26).

The concentration of large stretches of land in the hands of a few powerful and exploitative landlords resulted in widespread social unrest in the region. This culminated in the Communist Party backed Telangana Peasants Armed Struggle between 1946-1951. The oppressed peasants and agricultural labourers of 4000 villages in Telangana districts of Nalgonda, Warangal and Khammam rose in armed rebellion demanding the end to *Jagirdari* system and exploitation by the *Dora*. A sizeable body of academic literature already exists examining different aspects of this uprising (Elliott, 1974, Sundarayya, 1973d in four parts, Srinivasulu, 2014, Sundarayya, 1972, Thirumali, 2003), therefore I will not explore it in detail here. However, changes in agrarian structure that this successful uprising engendered is relevant to this research.

A series of legislations between 1948 and 1956<sup>10</sup> abolished the *Jagirdari* system and the rights of other intermediaries in owning and administering land revenue. The acts also recognized the rights of tenants on land, regulated period of tenures, a fixed rent, and protection from being evicted without compensation by the landlord. The measures also provided opportunities for landless tenants to become owners of small plots of land, by distributing the lands from big landlords

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<sup>10</sup> Hyderabad State became a part of the Indian union in 1948. It was a separate state in between 1948 and 1956, when it was merged with Andhra Pradesh as a part of state re-organisation based on linguistic zones.



(Ramachandraiah and Venkateswarlu, 2014)<sup>11</sup>. This fragmentation of land led to a sizeable increase in the number of small peasant-holdings in Telangana.

Arun Kumar (2007) observed this trend in his study of agrarian change in Nalgonda district between 1960-1990. Over this period of 30 years, the number of small agricultural holdings (of 1-4 hectares of land) had significantly increased, while larger holdings of (5-10 hectares or more), had visibly decreased (Kumar, 2007: 32-33). A similar study by Ramachandraiah and Venkateswarlu (2014:12-13) on land administration and displacement in Andhra Pradesh, reiterated that more than 33,000 tenants became owners of about 82,000 hectares of land by the mid-1970s. This is also corroborated by the data collected during my fieldwork. In the 52 villages surveyed, the *kammari* said that the majority of their clients are small farmers owning up to 5 acres (2.02 hectares) of land, and only a few own a maximum of 10 acres (4.04 hectares) of land (FN).

### ***Change in agricultural production: The Green Revolution***

Parallel to this development, a massive change in the nature of agricultural production took place in the region from the 1970s. As a part of a nationwide initiative to make the country self-sufficient in food production and supply, the concept of a “Green Revolution” was introduced. In Andhra Pradesh, this was done through the introduction of irrigation schemes, the supply of genetically modified seed for food crops to ensure harvest, and putting in place a large distribution

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<sup>11</sup> Hyderabad (Abolition of Jagirs) Regulation of 1948; Abolition of Inams and Cash Grants Act, 1955; Hyderabad Tenancy and Agricultural Lands Act, 1950.

network for food crops in different regions of the state. A State Assurance ensured a Minimum Support Price (MSP) for rice-paddy. Minimum Support Price (MSP) are the prices that the central government guarantees farmers for their harvest in case there is a sharp fall in market prices. For example, the current national MSP for rice-paddy stands at Rs. 1310 per quintal (100 Kg) of harvest.

The effects of this “Green Revolution” were not uniformly felt in Andhra Pradesh. While the peasants of coastal Andhra benefitted from these measures and increased their harvest, the scheme had adverse effect on the peasants of northern Telangana region (Crumley and Marquardt, 1990, SER Division, 2001). Telangana is a semi-arid region where cultivation is heavily dependent on irrigation. When this region was first systematically settled under the *Kakatiya* regime (1052-1323 CE), land grants were generally accompanied with a provision for construction of *cheruvus* (tanks) in the villages to provide for irrigation of the surrounding areas (see discussion in 3.2.4). This tradition was followed well into the medieval period and lasted until the late 19<sup>th</sup> century. Many of these tanks exist in the present day and are important markers of the antiquity of the surrounding settlement pattern. However, these do not presently serve any irrigational function and most of the irrigation channels leading from these have silted up due to a lack of maintenance, as suggested by the following report to the Indian Government.

*“At the same time, due to indifferent attitude of the successive governments most of the age-old irrigation tanks were prone to siltage and ultimately decline in irrigation potentiality from 10.68 lakh hectares in 1980 to 7.27 lakh hectares in 2000-01.”*

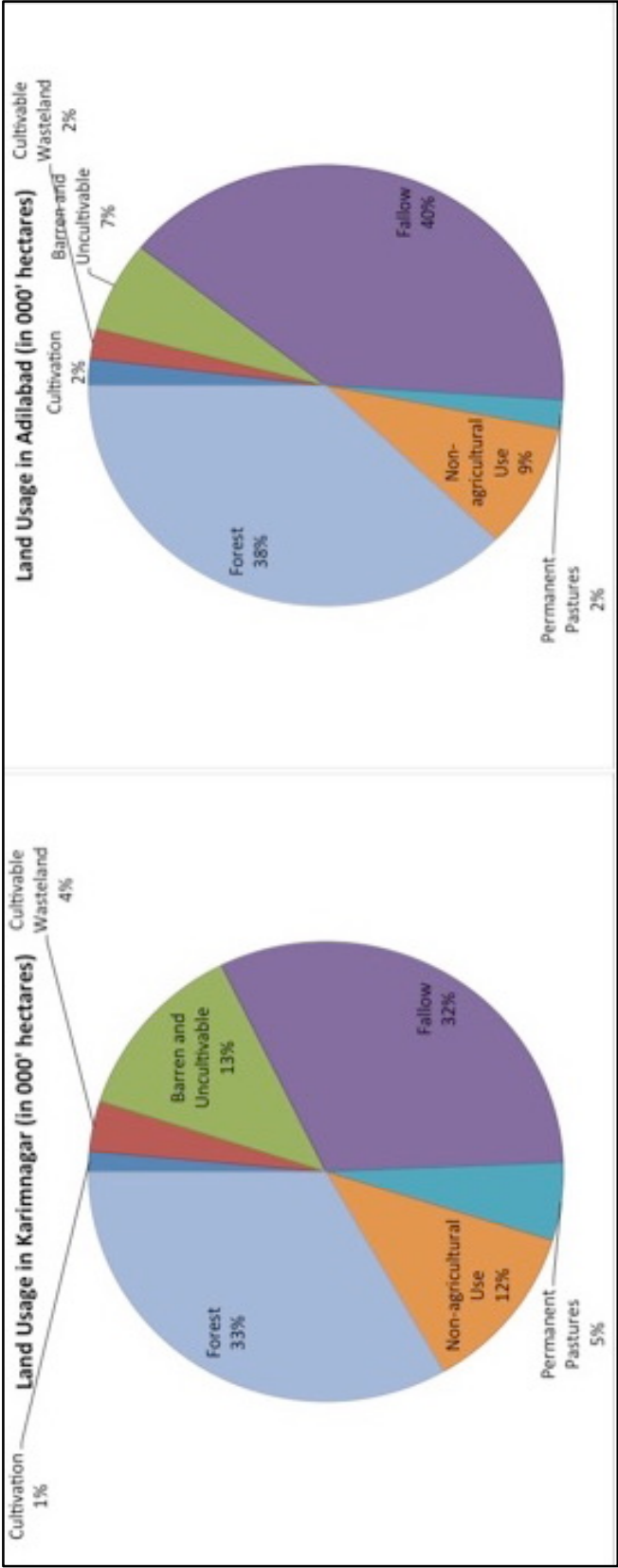
(SER Division, 2001)

Post “Green Revolution” irrigation canals cover only a small area in Telangana. There is also a shift in cropping pattern in the region. Being a semi-arid climate, the farmers in Telangana were primarily cultivating dry crops such as wheat and maize. However, since the government ensured an MSP only for cultivating paddy, large portions of lands under dry crops were rapidly converted into paddy cultivations. Irregular rainfall and lack of proper canal irrigation meant that the farmers resorted to deep tube wells and electric pumps to provide enough water for paddy cultivation. Consequently, the ground water levels have considerably reduced in this area over two decades, forcing the farmers to leave a large number of cultivable lands as fallow, affecting their livelihoods and the economy of the villages:

*“The number of fallow lands [in Telangana] increased from 7,00,000 hectares to 14,17,000 hectares in between 1955-56 to 2000-01.”*

(SER Division, 2001).

The chart below (Fig. 9.19) is an explicit representation of this. The data is collated based on the Government of India’s survey of land-usage in Karimnagar and Adilabad districts. The area under active cultivation recorded in Karimnagar and Adilabad districts were 1% and 2% respectively, whereas the total percentage of land left fallow and recorded as cultivable wastelands amount to 36% in Karimnagar and 42% in Adilabad district.



“Figure 9.19 The number of fallow lands [in Telangana] increased from 7,00,000 hectares to 14,17,000 hectares in between 1955-56 to 2000-01.” (chart prepared by the T. Neogi)

### ***Reorganization of the rural socio-economic structure in Telangana***

The pre-existing power structures described in detail in this chapter and earlier in the thesis have altered in this rapidly changing socio-economic environment of rural Telangana. Village society had to be reorganized on new lines and relations of power negotiated afresh between different groups. Those professional groups, including the artisans who had traditional contractual relations with old feudal magnates or subsidiary tenants, found themselves compelled to renegotiate the terms of services and relations of power with a new group of bonded labourer-turned-agriculturalists, who owned relatively smaller portions of land than the old landlords (the *Desmukhs*).

The immediate effect of this was an increase in the number of client families a *kammari* or a *wadla* has to forge for annually. This led to prosperity among the *kammari*. The amount of harvest received as remuneration per plough forged for each peasant family decreased as the sizes of the new peasant holdings shrunk considerably due to redistribution of land. However, a lower payment was made up by an increase in number of client families. For example, Kanoju Laxminarayana's (2) father provided his services for only six farmer families in Siddipet (then a large village) and neighbouring villages. However, when Laxminarayana started working as a blacksmith in the 1960s, the number of client farmer families rose to 50.

The period between 1950 and 1975 is also characterized by migrations of *kammari* families between different villages of the Telangana region. Increased numbers of small peasant-holdings meant an ever-growing demand for *kammari* families to

forge agricultural implements in different villages. In the period prior to this, the tenant-farmers under the *Desmukhs* or the *Desmukhs* themselves normally sought the services of *kammari* families of a neighbouring village if there were no blacksmiths in their own village. This practice continued even in this period, but due to a great increase in the number of farmer families, it was more efficient to have the services of at least one *kammari* available exclusively for the farmers of the villages, rather than depending on the services provided by the *kammari* families of a neighbouring village. Therefore, the farmers invited the *kammari* families to come and settle in their own villages from neighbouring villages that had more number of *kammari* families. They were offered a piece of land in the village to establish their residence and workshop and a contract for annual grain payment was negotiated with the farmers.

Ethnographic records collected for this study provide some evidence of this migration. Kuchanapally Bakkanna (26), Kuchanapally Narayana (16) and Ramadugu Shankaraiah (17) for example, migrated from Dasturabad to the neighbouring villages of Rangapeta, Birnandi and Somarpet respectively on such invitations. Rajaram, a village near Dharmapuri in north-eastern Karimnagar is the ancestral home of Devarukonda Sayanna (4 & 5). His family forged for the farmers of Rajaram, Dhammannapeta and Nakkalapeta villages, since there were no blacksmiths in the latter two. However, more than 40 years ago, Sayanna was invited by the farmers of Dhammannapeta to settle in the village. They offered him a plot of land on which his present house and workshop is built. As the only *Kammari* in the village, Sayanna used to forge for all of the farmer families in



Dhammannapeta (around 200 families), however, the number of clients has now shrunk to sixty. Polasa Rajaiah's (43) father left their ancestral village of Kandlapally and settled in Mangela, seven kilometers east, along with a few of his relatives in the early 1950s.

*“My family and my brother’s family have 45 farmers [families] each. When my father came and settled in this village with other blacksmiths, who were all relatives, they had divided the [the farmer families in the] village in equal parts. Presently all of the 13 blacksmith families have around 45 farmer families each. Before my father died, he divided his clients equally, between my brother and me. The seven carpenters also divide the clients equally among themselves. Each client family gives us 50 kg of corn annually.”—*  
Rajaiah recollected.

These intra-regional migrations had significant effect on the relations of power between the *kammari* and the farmers. The mutual checks and balances that ensured a status quo, were broken. The prestation system had evolved along with the decline in the old feudal system, and the *kammari*, along with the *wadla* emerged more empowered than their new class of peasant clients. The *kammari* could now bargain for better remunerations from their new clients as fresh oral contracts were negotiated. They were also able to ask for a good relocation package when such requests were made.

In the 1970s, with the advent of the Green Revolution, the farmers started to shift from producing dry crops, suitable for the semi-arid climate in Telangana, to large-

scale cultivation of paddy. Due to the unequal pattern of development in Andhra Pradesh during this period, Telangana region could not reap the benefits of the modern canal irrigation network that was laid out by the government. Telangana farmers had to keep up with the steep competition from the farmers of coastal Andhra, who were getting superior yields in paddy due to favourable climatic and irrigation conditions. Lack of enough water, and fluctuating monsoon meant that a large portion of cultivable land was kept fallow in Telangana (fig. 9.19).

As a result, Telangana peasants rapidly found themselves impoverished. This affected their relationship with the *kammari*. Inadequate harvest meant that the farmers refused to part with the portion of their produce intended as remuneration for the *kammari* and the *wadla*. In addition, in order to provide incentive to the farmers to cultivate rice-paddy, the government assured an MSP for rice at this time. This meant that if the farmers sold most of their harvest to the government contractors, they would get an assured amount in cash, irrespective of the market price for rice. It became possible then for the farmer to sell to government contractors, the amount of rice that he had to set aside as remuneration for the *kammari* and the *wadla*, and secure cash to sustain his family, re-invest a part of that sum in purchasing improved varieties of seeds, pesticides and pumps to ensure greater yield the following year.

The farmers therefore, tried to negotiate the with the *kammari* by persuading them to accept cash appeared to them as a massive alteration of the traditional system. Not producing implements for the market in return of cash payments has been key to the *kammari* identity in rural Telangana. The gesture of accepting payments only

in kind, along with the ritual of wearing the sacred thread, were key symbols of their status as ritually pure *Viswabrahmin kammari*. These traditions made them distinct from other blacksmith groups, such as the Marathi *Panchal* or the Lambadi *shisha kammari* of the region, who operated in an urban cash economy. During my fieldwork I have heard the *Viswabrahmin kammari* use these symbols to articulate their difference from the *shisha kammari*. In most cases, mode of payment was the primary marker of distinction (Appendix 1). Accepting cash payment will, therefore, affect the foundation of identity, ritual purity and prestige for the *kammari* community. Also, the benefits of the MSP were available to the *kammari* as well. They now saw the opportunity to achieve a better income from selling surplus rice from their annual prestation payment to the government contractors without worrying about the price of rice in the market.

This situation created a deadlock. The established prestation system was not working in favour of the impoverished farmers, as the traditional village artisans they depended on, clung to the system that was the source of their identity and power. The *shisha kammari* arrived on the rural scene in Telangana at this crucial juncture. Although they were present in Telangana in increasing numbers for a number of years, they primarily provided for the needs of an urban and semi-urban clientele (Chap 6). The work ethic of the *shisha kammari* is very different from those of the *Viswabrahmin kammari*. They are a group of itinerant blacksmiths who forge for their clients and receive cash payment on a piecework basis. Unlike the *kammari*, their production in a *shisha kammari* forge is not strictly regulated by order. They forge and sell iron implements for household use in urban markets and

weekly village markets in exchange of cash, and unlike the *Viswabrahmin kammari*, the women of the family are also involved in blacksmithing. Hence, they have more 'manpower' at their disposal and can produce more items in a comparatively short period of time, something that is essential for market-oriented production units.

Prior to the Green Revolution, when the established prestation system was working effectively for both the farmers and the *kammari*, the impact of the *shisha kammari* in rural Telangana was limited to the weekly village markets. However, in the above crisis more and more farmers started to seek the services of the *shisha kammari* for agricultural implements manufacture and repair. The preference of the *shisha kammari* to accept cash payment on a piecework basis, and the fact that they procured scrap iron and charcoal from the market themselves suited the farmers. The impoverished farmers were no longer bound by any long term agreement with the blacksmiths. This also saved the farmers spending money to purchase scrap iron from the market and bring it back to his family *kammari* in the village. Finally, it saved the farmers the 50 kg -100 kg of crops that they had to pay as annual remuneration to the *kammari*, which could now be sold to the government for the MSP. Ethnographic enquiry for this research revealed that the *shisha kammari* charge something between Rs. 250 and Rs. 300 per new ploughshare forged (depending on the local market price of iron per kg.), and less for other implements. There is a charge of Rs. 50 per repair (7, 9, 36, 37, 63)—something that the farmers in Telangana could afford.

The advent of the *shisha kammari* in production of agricultural implements tilted the balance of power towards the farmers and away from the *Kammari*. An increasing number of farmers started abandoning the services of their family *kammari*. When they were questioned by local caste-associations and village administration for the breach of traditional contract, the farmers paid the required monetary fine or compensation to the *kammari* family and left the traditional contract. With the improvement in road connectivity in the area the *shisha kammari* soon started travelling through the villages in the months of May and June, preceding the monsoon sowing season. Sudarshan Medavaram (7), an out of work *kammari* from Shekalla described the situation:

*“They are itinerant in nature and come to the village before the monsoon during the sowing season in May-June every year. They bring newly manufactured agricultural implements and the farmers purchase those from them. This transaction happens in cash. The Shisha Kammari do not have any fixed number of clients in any of the village they visit. And not the same group of Shisha Kammari visits [this village] every year. Some of these groups pitch tents in the village for a few days (2-3 times a year) in the course of their travel. They set up temporary forging hearths, and use their portable tools to forge agricultural implements according to what the farmers order. The price of a tool is determined according to the weight of scrap iron needed to manufacture it. They charge Rs. 60 per kilogram of scrap iron. In this case the blacksmiths themselves bring the raw materials needed for manufacture-- the farmers do not have to provide them... They [the Shisha*

*Kammari] do not have any permanent place to stay as they keep on moving from place to place.”*

The *kammari* were compelled to negotiate to retain their clients and survive in the village economy. Figure 9.20, compiled from the ethnographic interviews with various senior members of the *kammari* community conducted during my fieldwork, represents the trend of reduction in their clientele. Faced with this adverse situation, a majority of the *kammari* have started accepting cash payments, either on piecework basis, or one-time payment through annual contracts. However, since the farmers are now in an advantageous position in terms of negotiating contracts, those who still seek the services of their family *kammari* pay them a meagre sum of Rs. 500 to Rs. 1000 per year. This amounts to a total annual payment of Rs. 20,000-50,000 if a *Kammari* forges for 20-50 clients on average. This income is not enough for the sustenance of their family. In addition, under this new system of annual cash payment, the *kammari* find themselves severely disadvantaged having to purchase basic staples from the market which were earlier provided by their client families. This led to a large-scale impoverishment of the rural *kammari* community.

### **9.3.3 The displacement of the rural kammari community of Telangana**

The rupture in the established prestation network and resultant subordination of their power by their erstwhile clients, and uneven competition with the *shisha*



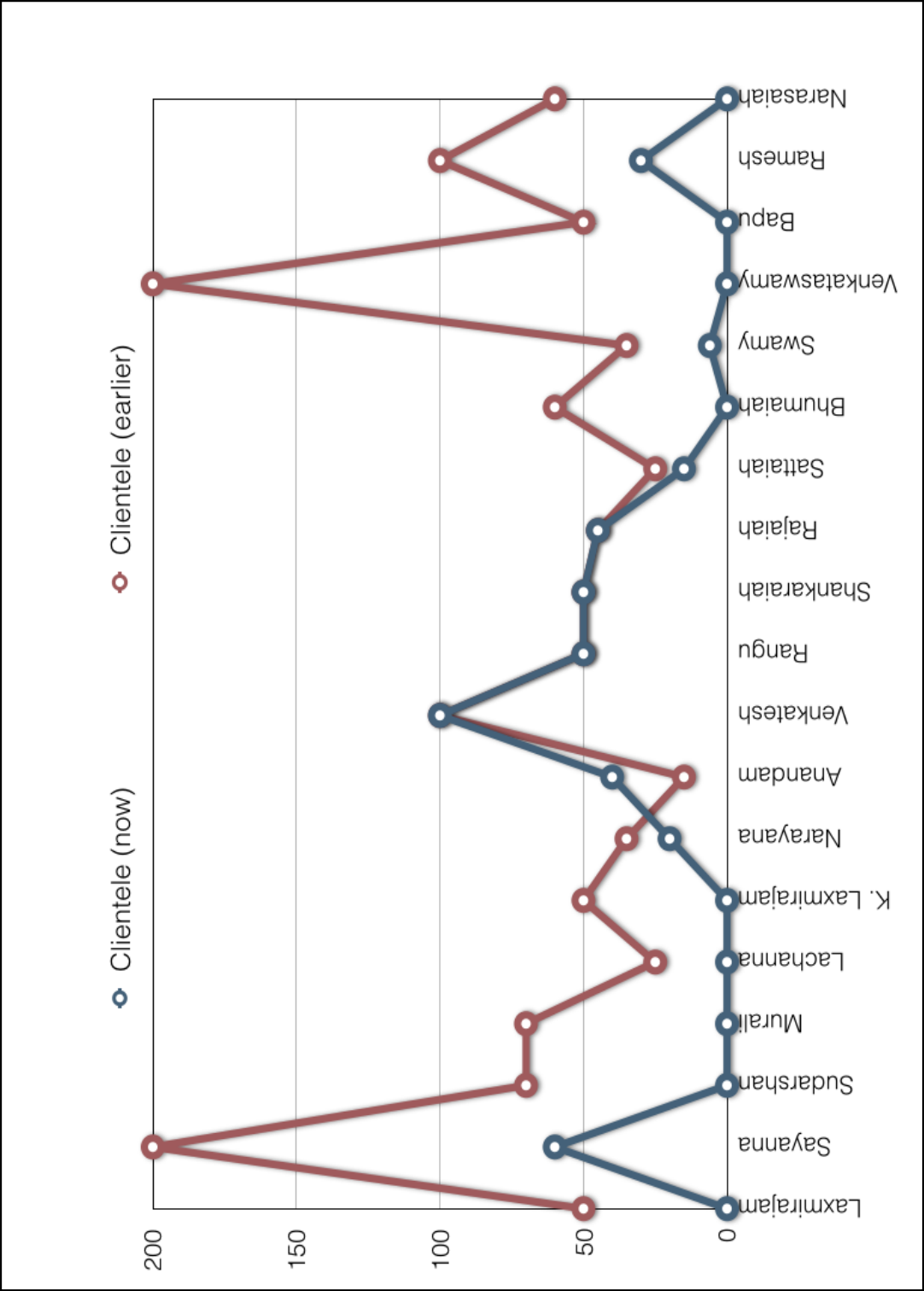


Figure 9.20 Chart showing the decrease in the number of clients among some kamhari interlocutors in the last 2 decades. (chart prepared by T. Neogi)

*kammari*, initiated a process of steady decline in the once thriving rural iron-working tradition of Telangana. The *kammari* were pushed to look for alternative ways to earn a living. Many left their ancestral villages and migrated to urban areas or, more recently, to the Gulf countries in search of work. Chattapally Mallesham, the son of Chattapally Bhumaiah (58 & 60); the eldest son of Kuchanapally Kondiah of Dasturabad and a majority of the adult male members of the *kammari* families of Konasamudram and Konapuram are cases in point.

Those who could save some money had set up welding and iron hardware stores in the towns and by the major highways (e.g. Rudroju Bhimalingam and other *kammari* families of Mallyala 19). While others have taken up carpentry (e.g. Kottapally Laxmirajam of Sirukonda 12) as their primary trade, whereas blacksmithing remains a subsidiary occupation (Fig. 9.2). Although a significant part of a carpenter's income comes from grain payments by his farmer clients, carpentry as an occupation survived these changes in agrarian production and in rural power relations, as the *wadla* were not exclusively dependent on the manufacture of agricultural implements. Their skills are in demand to this day for manufacturing household furniture and making doors and windows for houses in a village. Apart from the farmers, they provided for the needs of various other groups in a village, and therefore were more open to operating within the cash economy. Unlike the *kammari*, *wadla* identity did not depend on the medium of transaction. Lerche (1993) had also identified the similar pattern of change among the rural artisans while studying the decline of traditional prestation relations in rural Orissa.

In some villages in my study area, a reverse trend is also observed, where carpenters have taken up blacksmithing on a part-time basis. In the village of Maddunur for example, Jammikunta Murali (10) and Golapalli Lachhanna (11) are both from traditional *wadla* families. As the village *kammari* had all left Maddunur, the farmers approached them to take up part-time blacksmithing, since both of their relatives were blacksmiths. Since their services are, however, only required for occasional repairs in agricultural implements, Lachhanna and Murali have not learnt the process of forging a new implement. If any new implements are required, these are forged by the *shisha kammari* who visit the village once or twice every year.

During my fieldwork I felt a strong undercurrent of dislike towards the *shisha kammari* among the *kammari* interlocutors of my study area. Although the *kammari* in some villages have attempted to protest through the existing caste-associations or *Sangham* against the farmers for patronizing the *shisha kammari*, little has changed. In the reorganized rural power structure, the farmers, for their own benefit protect the interests of the *shisha kammari*. The introduction of field-tractors and other technologically advanced equipment in agriculture with the liberalization of the Indian economy in the 1990s sounded the death knell for what remained of traditional rural blacksmithing in the region. For *kammari* like Chintala Venkataswamy (48), Kuchanapally Bakkanna (26) and others who still had sufficient clients to eke out a living from blacksmithing, their services are now only required occasionally for repairing agricultural or household tools. Probably the situation is best summed up by the following excerpt from the conversation I had

with Padakanti Hanumanlu (53), a 65-year-old chief of the *kammari* Sangham in Kodimiyala village near Jagtial:

*“What is your opinion about shisha kammari? Are they taking the works away from you?”—I asked.*

*“There is one shisha kammari family here. Some farmers brought them from the town to get their small repairs done instantly. They pay him less than they have to pay us. There is not much work for us anyway due to the tractors.”—Hanumanlu explained.*

*“Why do you think; the farmers prefer the shisha kammari family over the kammari?”—I asked.*

*“Kapu [a rich farming caste] brought the shisha kammari. He is affecting our work. The Reddy’s are high and we cannot talk to them. They do not want to give us crops anymore. They want to sell the crops in the market. shisha kammari works for less money. Their [the farmers’] profit.”—Haumanlu confided in an agitated tone.*

#### 9.4 Summing up

During my fieldwork I found the lives of rural the *kammari* families largely displaced by lack of clients. I have heard them mourn the loss of a way of life that had sustained them for generations. Moreover, there was a sense of uncertainty about the future. The causes of decline investigated above is based on a range of ethnographic and historical sources. There is ample evidence to conclude that a

rupture in the pre-existing prestation relations between the *kammari* and their client farmers caused this decline in rural blacksmithing traditions. The prestation system was not static as promoted by earlier scholars who wrote on the *Jajmani* system. There were certain socio-culturally determined safety valves, like local caste-associations, ritual symbolism and the fear of punishment, which held the system together in the past. However, with the changing agrarian structure, these relations of power had to be constantly renegotiated and the power balance tipped in the favour of the *kammari* at first and then more recently in favour of the peasants. While the “Green Revolution” produced a rich class of peasants in coastal Andhra, its effects were reversed in Telangana. This led to impoverishment of farmers with small peasant-holdings. The commercialization of agricultural products through MSP provided an avenue for financial upliftment of the peasants. They were more interested in selling their harvests in the market than paying a part of them as remuneration to the *kammari*. The inability of the *kammari* to accept cash payments led the farmers to break traditional contracts and seek the services of the *shisha kammari*, who started tours of the villages to manufacture agricultural implements against cash payments. This ruptured the traditional prestation system and triggered the final decline in the trade of the *kammari*. Many *kammari* have since migrated and changed occupation to secure a better living. The *shisha kammari*, due to their ability to adapt to the demands of local market forces, are thriving today.

The *Viswabrahmin kammari* are trying to cope with this adverse situation by forging a new identity for themselves by replacing the old cult with the cult of a

seventeenth-century saint. *Viswabrahmin Sanghams* were set up at local village and mandal levels to look after the interests of the community and collectively voice their concerns and demands through democratic political channels. The next chapter will focus on these two interconnected processes.



## CHAPTER 10

### COPING WITH THE DECLINE: THE ROLE OF CULT AND CASTE ASSOCIATIONS

#### 10.1 Introduction

Early on a late March morning in 2010, the day of *Ugadi*, New Year in the Telugu calendar, a group of *kammari* at Ibrahimpatnam-Karimnagar (henceforth Ibrahimpatnam-K) emerged from the temple of their goddess, *Mammayee* (Fig. 10.1) forming an orderly queue. They had just finished the final *puja* to the goddess in a three-day festival. Throughout the duration of the festival the male members of the *kammari* community cooked, ate and spent most of their time together in the temple. *Kammari* women and members of other communities, including non-*kammari* *Viswabrahmin* groups did not have permission to enter the temple. They are allowed at other times of the year but are required to take permission from the *kammari* elders. After each of the *kammari* reach home, they will forge an agricultural implement and send it to their farmer clients to renew their traditional terms of prestation. The farmers will accept their gift and give food in return, and hence promise to pay a certain amount of grain to the family *kammari* after the annual harvest in return of their service of forging and repairing agricultural implements for them.

Fifty-two kilometres away, a much larger and diverse congregation of devotees from scattered villages have assembled in the front yard of the Veera Brahmendra

Swamy temple at Anantharam, near Jagtial. It was also the morning of *Ugadi*. Men and women belonging to all the *Viswabrahmin* craft groups have come together to participate in special worship of the patron saint of the community. A vegetarian feast follows the *puja*, where the *Viswabrahmins* socialize over food before returning to their individual villages.

These two are radically different cult performances by the members of the same community within the same region. The former is more closed, strictly regulated and focused on the relationship between only one of the five *Viswabrahmin* groups and their clients—the *kammari* and their client farmers. The latter, on the other hand, is more eclectic and brings the entire *Viswabrahmin* community together. The individual group identities are superfluous in the ritual performance of the cult, and the clients of the individual craft groups do not play any role in the execution of the rituals. These ritual performances cater to two different socio-economic power structures based in two different times—and therefore, have different social roles to fulfil. The cult of *Mamayee* performed in Ibrahimpatnam-K is targeted at reinforcing a socio-economic power structure founded on a strong agrarian base, where the *kammari* and the farmers were unequivocally dependent on each other for sustenance. But with the recent decline in traditional prestation relations, discussed in Chapter 9, a radical shift in the nature of cult performance is observed among the *Viswabrahmins*. I will discuss this shift in this chapter.

From my three-season-long fieldwork with the *kammari* in Karimnagar and Adilabad districts of northern Telangana, it was evident that the primary markers of their identity and position within the rural power structure are defined by four

elements: the craft, the cult and the sacred thread, the long established relations of exchange with client farmer families, and strict refusal to produce any item for the market, or until recently, accept cash transactions (Chaps. 6.3 & 9.3). As mentioned in Chapters 6 and 9, these elements of *kammari* identity had to be constantly reinforced and the relations of power constantly renegotiated and reasserted. This is done through a number of symbolic performances involving the *kammari* and their primary clients, the agriculturalists. With the changes in rural northern Telangana explained in detail in the last chapter, these important elements of rural *kammari* identity have gone into decline. Faced with the adverse situation, many *kammari* are forced to accept cash payment and work on a piecework basis. Although they still wear the sacred thread, it does not carry affordance of power in the present day, outwardly-democratic village environment, where caste does not carry the same significance. In fact, there is a conscious attempt at official levels to promote a caste-less rural society through the person of Dr. B.R. Ambedkar, the face of anti-caste politics in India, whose statue can be seen at village centres and important road-junctions in every village.

The *kammari* have responded in two ways in order to prevent the community from decline, save their craft, freshly negotiate their position of power in the village society and reassert their identity—by replacing their old cult of the goddess *Mamayee* with the new cult of a 17<sup>th</sup> century saint-turned-demi-god, *Veera Brahmendra Swamy*, and by modifying pre-existing rural associations of caste-elders into more organized, politically active and philanthropic *Sanghams*, or caste-associations, connected with the intra- and inter-regional narratives of

*Viswakarma/Viswabrahmin* caste identity. I will examine both of these shifts in this chapter. I will first discuss a change in cult performances and narratives through a comparative analysis of the annual festival of the old cult of *Mammayee*, and the new cult of *Veera Brahmendra Swamy*. Then I will investigate the emergence and workings of the *kammari* caste-associations in northern Telangana, in the second half of this chapter.

## 10.2 The Cult of *Mammayee*

### 10.2.1 Introduction to the cult of *Mammayee*

*Mammayee* (Fig. 10.1) is still worshipped in a handful of villages in northern Telangana as the goddess of the local metalworking communities—the *kammari* (blacksmiths), the *kanchari* (bronze-smith) and the *ausala* (gold and silver smiths). Jakishan (2007, 2009, and personal interactions) in his pioneering study of the social aspects of *Wootz* steel production, suggests that the cult of *Mammayee* was thriving among the iron-smelters and blacksmith communities of Telangana from the early medieval period till the decline of pre-industrial crucible steel production in the early 20<sup>th</sup> century. He further suggested that the cult of *Mammayee* was central to the identity of the metalworking communities in general, the blacksmiths and iron-smelters in particular, and many northern Telangana villages had a temple of the goddess within its boundaries. Presently, only a very few of these temples survive. My initial short study of the cult 2010, and a more detailed investigation the current research showed that the knowledge about the cult among the present generation metalworkers have shown a very rapid decline in the study area.



*Figure 10. 1 The Goddess and the Priest: The Cult of Mammayee at Pembarti village of Warangal. While the Ausala and the Kanchari communities maintain the cult, the priest is from a Wadla community. (taken by the author)*

The origin of *Mammayee* cult is shrouded in obscurity. The mention of the cult is not noted in any pre-colonial documents from the region. The colonial and administrative documents under the Nizam are equally silent. Hassan's (1920) detailed eponymous study of castes and tribes of the Nizam's dominion do not mention the cult either. However, Hassan does mention a pre-dominance of worship of the female principle among the *Panchals*<sup>12</sup> of Telangana.

<sup>12</sup> Since the Nizam's dominion incorporated three distinct cultural-linguistic regions—Telangana, Kannada and Marathawada. There are subtle differences among the organization and identity of the artisan castes among these areas. Hassan acknowledged these differences but classified the blacksmiths, carpenters, bronze-smiths, goldsmiths and sculptors of these three regions as *Panchals* for his convenience.

“The favourite object of worship of the Panchals is the goddess Kalika, also called Ambika, to whom sheep, goats, fowls and wine are offered on the first day of the bright half of Chait and again in the month of Shravana (August-September). No priests are employed for the worship of the goddess and the offerings are eaten by the members of the household. Fridays and Tuesdays are believed to be the most propitious days for this worship. Offerings of sweetmeats are also made to the goddess Kamakshi of Kanchi, who is held to be one of their patron deities. Most of the Panchals are Shakti worshippers...”

(Hassan, 1920:556)

Jaikishan (2007), based on the etymological origin of the name *Mamayee*, suggested that she was the principal goddess of the *kammari* community. The name *Mamayee*, according to Jaikishan was derived from the synthesis of two Telugu words *Amma* (mother) and *Ayee/Ayas* (iron). Jaikishan noted the presence of *Mamayee* temples in a few former *wootz* steel production centres in northern Telangana. Based on this and architectural features of major *Mamayee* temples he concluded that the *wootz* steel manufacturers of Telangana worshiped the cult of *Mamayee* from the early medieval period (9<sup>th</sup> century onward). My short initial study of the cult with Jaikishan in 2010, (Neogi and Jaikishan, 2011), has also reinforced this hypothesis. However, new data coming out of more intensive



investigation of the cult during three seasons of ethnographic fieldwork, prompted me to revise this position.

### ***Gramadevata cults in northern Telangana***

In 2010 we did not have the required time or resources to explore the cultural and oral historical context of the cult. However, subsequent fieldwork facilitated a substantial investigation of the socio-cultural context of the cult in the study area. From ethnographic observations it became evident that the *Mammayee* cult is not as unique as it was thought to be in 2010. It is one among a constellation of various local manifestations of the mother goddess (the cult of *Ammavaru*<sup>13</sup>) worshipped by different communities in rural Telangana as a *Gramadevata* (village deity). The *Gramadevata* cults of *Yellamma*, worshipped by the *Gauda* (toddy-tappers) and the *Madiga* (untouchable leather-working and scavenging caste) communities is fairly well documented in Telangana and other parts of Andhra Pradesh (Bradford, 1983, Charsley, 2009). Other important *Gramadevata* cults in the study area are that of *Maisamma* (buffalo goddess), *Mariamamma* (goddess of rain), *Poleramma* (protector of village/goddess of smallpox). The *Gramadevatas*, mostly female, are worshipped by the villagers to seek protection from evil spirits, ensure fertility of the soil, conception and childbirth, productivity of the artisans and protection from tropical life-threatening illnesses such as cholera, malaria and (earlier) smallpox (Padma, 2013). The cults of various *Gramadevatas* are an

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<sup>13</sup> Can roughly be translated into English as “The Female Principle”.

important element of identity of different subaltern rural groups. In most instances, the *Brahmins* are not allowed to officiate the ceremonies and annual festivals of these cults. Instead, priests and official singers and musicians for the cult are appointed from the lower castes.

“These professionals, just the same way as the priests of gramadevatas, are derived from various non-brahmanic castes. For example, the myth of goddess Renuka Ellamma in its many variations is sung by malas or madigas (formerly untouchable castes), the stories of the goddess Gangamma are sung by gollas (the traditional cattle/sheep/goat keepers), and the myths of the goddesses Pinnamma and Posamma are sung by the chakalis (washermen caste). That these specific caste singers specialize in the mythology of a particular goddess also indicates that these goddesses were originally worshiped by these caste groups before they became gramadevatas.”

(Padma, 2013:52-53)

This tradition can also be identified in the existing *Mammayee* temples in northern Telangana. The priests here are appointed from one of the five *Viswabrahmin* artisan groups and the *Brahmins* are not permitted within the temple premises at any time.

*Gramadevata* cults and their modest temples served as the focal point of community organization and empowered subaltern communities to negotiate relations of power with other communities in the village. Misra and Rao (2002)

suggest that the origin of these local mother goddess cults in South India could be traced back to the 12<sup>th</sup> century. They claim that the *Bhakti* movement preached the concept of non-duality and critiqued rigid Hindu caste-system and provided opportunities for upward social mobilization for the fringe-communities in contemporary early-medieval caste structure.

“That is why Bhakti movement came out with an idea of accessing Hinduism by all the people and condemned the distinctions based on castes and gender, the important aspects of non-Vedic religions. Nevertheless, even though devotees were denied temple entry, it was ensured that in certain temples the lower castes could enter one day in a year. This entry was at the time of the annual temple festival. But at the same time, it was careful to see that in turn the lower castes would not become equal or more powerful. Nevertheless, they were encouraged to build their own temples and install their own deities, so that they might get a chance of priesthood.”

(Misra and Rao, 2002:3-4)

One of the ways this was achieved was by accommodating local community cults within the Hindu pantheon. The “*Sanskritization*” process saw the village goddesses incorporated with *Saivism*<sup>14</sup> and the deities began to be seen as manifestations of *Parvati* or *Durga-Kali*, the divine consort of *Shiva* (Fig. 10.2). In most instances, this process led to a subordination of the pre-existing village

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<sup>14</sup> The cult of Shiva. *Saivism* was a major strand of Hinduism in south India throughout the medieval period.

deities to their new-found divine consort *Shiva* (Padma, 2013; Misra and Rao, 2002). This process of incorporation took place in other parts of India with the gradual expansion of Bhakti ideals to the north of the country. The process continues till this day with a new wave of “*Hinduization*” led by the RSS, a Hindu right-wing group in India. During my pilot fieldwork with the indigenous *Asur* smelters of Jharkhand in eastern India, I found that the Asurs started worshipping



*Figure 10.2 Mammayee temple in Konsamudram. Notice the pair of bulls as symbols of Shiva. (taken by the author)*

their primary deities of smelting—*Lohasur* and *Agyasur* as well as *Sansi-Kutasi* (tongs and hammer) as manifestations of *Shiva*. New *Shiva* temples have been built and the *Asur* myth system and methods of worship are being partially replaced by Hindu ways of worship. As a result, *Shiva* has emerged as the primary

deity at the cost of traditional smelter gods, who has no relevance since iron-smelting ceased in the 1950s (Leuva, 1963).

However, this process of subordination and eventual replacement of local deities by major Hindu gods and goddesses did not corroborate with my field observations in northern Telangana. Although the major village goddesses such as *Yellamma*, *Maisamma* and *Pochamma*, were introduced to me as the consorts of *Shiva*, the goddesses remained the primary focus of all cult related performances. This is also true for a handful of *Mammayee* temples that survive to this day.

### ***Mammayee as Gramadevata***

The cult of *Mammayee* can be better understood in this context. Jaikishan and Balasubramaniam (2007) and Jaikishan (2009) suggested in their work on the cult of *Mammayee*, an early 10<sup>th</sup> century origin for the cult. They based their hypothesis on the surviving temples of *Mammayee* in Peddakalvala (Fig. 10. 3), Ibrahimpatnam and Doreguda villages. These temples are built in Eastern *Chalukyan* (9<sup>th</sup>- 11<sup>th</sup> CE) and *Kakatiya* (11<sup>th</sup>-14<sup>th</sup> CE) architectural styles. When we visited the temple at Peddakalvala (Fig. 10.3) during the annual *Mammayee* festival in 2010, Jaikishan pointed out a scatter of early medieval sculptures and motifs in the temple yard and suggested a 10<sup>th</sup>-11<sup>th</sup> century origin for the temple and the cult. This interpretation presented two major problems. First, consistent with the rest of the Indian sub-continent the temples of *Gramadevatas*, even the major ones like *Yellamma* or *Erukamma*, have historically been modest, and often, temporary structures, unlike the grand stone-built *Mammayee* temples in

Peddakalvala and some other villages. However, more permanent brick and concrete temples are being built at present, especially in the urban contexts of Telangana. The second problem is connected to the first. If the cult was indeed housed in these grand temples, it must have been a major cult from 10<sup>th</sup> century onwards. It is therefore, unlikely that there will be no mention of this cult in any of the historical sources; including a large number of temple inscriptions on various temple-offerings and land grants. Yet no such records survive. In fact, none of the 79 published temple or land-grant inscriptions dating between 10<sup>th</sup> century CE and 17<sup>th</sup> century CE, identified at locations in Karimnagar district mention any Gramadevata.



*Figure 10.3 The Mammayee temple in Peddakalvala. (taken by the author)*



The artisan community is not mentioned in any of them either (Parabrahma Shastry, 1974). Even the meticulously recorded colonial reports and journals do not mention the cult of *Mammayee*, despite reporting the presence of other *Gramadevata* cults worshipped by the artisan community (Thurston and Rangachari, 1975[1907]; Hassan, 1920).

“All revere the caste goddess Kamakshi Amma, who is represented by each sub-division in a special manner. Thus the Kanchara represents her by the stone on which he beats his metal work, the gold- smith by one of his implements, and the blacksmith by his bellows. On the eighteenth day of the Dasara festival, an annual festival is celebrated in honour of the goddess.”

(Thurston and Rangachari, 1975[1907]:III-147)

A more realistic estimate of the time of efflorescence of the cult among the metalworking communities of northern Telangana could be reached by looking at the oral traditions related to the foundation of the individual *Mammayee* temples. Krishnamurthy, an *ausala*, is the owner of the *Mammayee* temple in Peddakalvala. When I met him in the course of my fieldwork, I enquired about the story behind the foundation of the temple. Krishnamurthy (55) said that the temple has been owned and maintained by his family for more than 250 years:

*“Mother [the Goddess] appeared in the dream of my great grandfather. She asked him to dig the place where the temple now is to free her from the ground and worship her. He found the deity there, along with the scattered beams and ceilings of an old temple, and a number of other deities. He*

*established the deity on the spot and used the [old] beams and stones to build the temple. Our family is worshipping her since then.”*

A similar type of foundation story exists for the *Mammayee* temple at Pembarti. The local *ausala* and *kanchari* communities maintain the cult collectively. Kirtanachary (13), a bronze-smith and cashier of the temple committee related the story behind the foundation of this temple. According to that oral tradition, *Mammayee* appeared in the dreams of a local silversmith 300 years ago, and asked him to bring her idol from the village of Madikonda and establish her cult at Pembarti for the well-being of the *ausala* and *kanchari* communities there. The temple, according to Kirtanachary, had been constructed at that time, incorporating pieces from an earlier temple structure that had existed in the village and the trade of the *kanchari* and *ausala* have thrived in the village since then.

The cult legend at Ibrahimpatnam near Hyderabad (not Ibrahimpatnam-K) also indicates an early 18<sup>th</sup>CE foundation for the temple and establishment of the cult. I also saw the process of rejuvenation of the medieval temple structures and their transformation into *Mammayee* temple at play in the small hillside village of Doreguda<sup>15</sup>, situated not far from Shamsabad airport in Hyderabad. Here, the construction of a *Mammayee* temple was under way when I visited in January 2014. The owner of the temple, a local *ausala* and his son, were supervising the construction. I saw them use *Chalukyan* stone pillars and other elements from an earlier temple. When I enquired about their provenance, the owners told me that

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<sup>15</sup> This is a pseudonym. The temple owners did not permit use of their names and the name of their village.

they were commanded in a dream to establish a *Mammayee* temple at this spot. While digging to find the idol suggested in the dream, they stumbled upon the remains of this old temple and decided to re-use the stone pillars and slabs to construct a new temple. They thought that this was due to divine providence the goddess has made these materials available to them. In contrast, the *Mammayee* temples at Uploor, Konsamudram and Ibrahimpatnam-K are modest structures befitting the nature of other *Gramadevata* temples. This is because these temples are owned and managed by the local *kammari* communities, who are financially ill at ease to build, maintain and restore large temples, as opposed to their more affluent *ausala* and *kanchari* counterparts. The data coming out from the oral history behind the foundation of these temples indicate an early 18<sup>th</sup> century efflorescence of the cult in northern Telangana. Even if the cult had existed earlier the knowledge of it is lost in collective memory.

Not enough research exists on the socio-economic context of early 18<sup>th</sup> century Telangana. Hence, the context of emergence of the cult of *Mammayee* during this period cannot be properly explained. However, a sudden efflorescence of the cult in early 18<sup>th</sup> century points to a possible reorganization of socio-economic power structures in rural Telangana. This may have prompted the rural metalworking groups to unite under and seek legitimacy through the cult of *Mammayee*.

### **10.2.2 The annual festival of *Mammayee***

I will now discuss the annual festival of *Mammayee* performed by the *kammari* communities at Ibrahimpatnam-K and Konasamudram (in Nizamabad district). I will

show how different ritual performances during the festival work to reinforce *Kammari* identity and define prestation relations of power with their client farmers. Drawing upon these, I argue that the cult of *Mammayee* performed by the *kammari* is intrinsically linked to the traditional prestation network. With the break-up of prestation system due to recent large-scale transformations in agrarian relations in Telangana, the cult of *Mammayee* has lost its relevance and has steadily been replaced by the cult of *Brahmamgaru*, which connects the *Viswabrahmin* artisans of Telangana with the pan-Indian Hindu artisan identity. The *Mammayee* temple at Ibrahimpatnam-K is built on a heap of crucible fragments and other archaeometallurgical remains. *Mammayee* temples at Konasamudram and Uploor are also situated on or adjacent to remains of pre-industrial iron and steel production. Based on this proximity, Jaikishan proposed a close relationship between iron-smelting and steel making communities and the cult. The proximity of the temple to the archaeometallurgical remains indeed show that the iron-working groups in these villages have been worshipping this cult at least since the early 18th century. However, this alone does not provide sufficient evidence to support Jaikishan's hypothesis that the *kammari* community originally only worshiped *Mammayee*. Ethno-historical evidence mentioned earlier in this chapter, suggest that the *ausala* and the *kanchari* communities in other villages of northern Telangana equally worshipped the cult.

### ***Mammayee cult at Ibrahimpatnam-K***

The *Mammayee* temple at Ibrahimpatnam-K is a modest building, very easy to miss but for its pyramidal roof. Apart from a small idol of the goddess, the shrine

contains a large painting of *Veera Brahmendra Swami* (b. 1608) (Fig. 10.4). Mattela Peddagangaram, the eldest among the village *kammari* served as the officiating priest of the cult. He explained that *Veera Brahmendra Swamy* or *Brahmamgaru* is highly revered and worshipped by all the five *Viswabrahmin* communities in Telangana. Even the local cult of *Mammayee* seems to have been subordinated by the cult of *Brahmamgaru*.

*“Brahmamgaru is very well respected by us. He united all our five groups in his lifetime. He also is like your Nostradamus! He foretold the arrival of railways (wheels moving on iron rods) and also airplanes. You can find all of this in Kalajnanacharitram [a compilation of prognostic sayings by the saint].”*



*Figure 10.4 The shrine of Mammayee inside the temple at Ibrahimpatnam-K. The statue of the goddess is placed on a throne in front of an image of Veera Brahmendra Swamy. The iron tools placed against the wall are also worshipped along with the deities during the festival.(taken by the author)*

The adjoining courtyard is used for functions and meetings of the *kammari* community. On every new moon day, an auspicious day for the deity, the members of the *kammari* community assemble in the temple yard to discuss problems and disputes between the community members, and with their clients. A council of four senior *kammari* advise the others in the community about solving these disputes. In addition, any important decision concerning the collective interests of the community are taken in similar kinds of meetings in the temple yard. These meetings are exclusively for the *kammari* and entrance to the temple premises prohibited for members of other communities without the permission of senior members of the *kammari* community. The temple, therefore, serves as the focal point of *kammari* identity and organization at Ibrahimpatnam-K<sup>16</sup>. In 2010, Dr. Jaikishan and I were granted permission to observe and make a photo and video recording of the annual festival of *Mammayee*, on the condition that we did not impede the ritual performances.

### ***The annual Mammayee festival at Ibrahimpatnam-K***

The annual festival of the goddess *Mammayee* normally takes place for nine days, commencing on the Telugu New Year's Day or *Ugadi*. In 2010, faced with acute financial difficulties, the *kammari* were forced to reduce the duration to three days. The *kammari*, like other *Viswabrahmin* communities, completely stop their work during this period. Before sunrise, on *Ugadi* day, the *kammari* bring their blacksmithing implements in tools to the temple and place them along the back-

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<sup>16</sup> Although there are *Mammayee* temples in some other neighbouring villages, the cult is still alive and active in Ibrahimpatnam-K only.



wall of the shrine beside the image of *Mammayee* and the picture of the saint (Fig. 10.4). Three senior *kammari*, including Peddagangaram, anointed the goddess and the implements with turmeric and vermillion powder. A sacred lamp is lit in front of the goddess and care is taken that it is not extinguished throughout the duration of the festival. A temporary cooking hearth was set up in the temple yard to cook vegetarian meals for the deity for the duration of the festival (Fig. 10.5). It was mandatory for all the male members of Ibrahimpattanam-K's *kammari* families to eat the vegetarian food cooked within the temple premises on all the festival days. Individual smithing hearths in the *kammari* workshops are repaired and decorated with auspicious floral and vegetal patterns and worshipped as the manifestation of the goddess. Although the *kammari* women are not allowed within the temple premises, or to play any part in the cult performances, they are expected to perform their worship at individual domestic shrines and to eat vegetarian meals. Prohibition on partaking of non-vegetarian meals and absence of the ritual of animal sacrifices seems to have recently become the norm with the emergence of the cult of *Brahmamgaru*, in an attempt to tap into the pan-Indian narrative of *Viswakarma Brahmin* or *Viswabrahmin* identity and ritual practices. Proscription of non-vegetarian meals during the festival is something not so common in other Gramadevata cults. Animal sacrifice is a major ritual element in the local Gramadevata cults followed by consumption of the meat of the sacrificed animal. Both Thurston (1975[1970]:III-147) and Hassan (1920) reported these rituals performed by the artisan community. Thurston and Rangachari especially noted that the Telugu "Kamsalas" are more inclined to a non-vegetarian diet than their



*Figure 10.5 Members of the kammari community cooking their vegetarian meal inside the Mammayee temple during the festival at Ibrahimpatnam-K (Pioneering Metallurgy Archives)*

Tamil and Kannara speaking counterparts in South India (1975[1907]:III-147-148).

We visited Ibrahimpatnam-K on all three festival days. A few members of the *kammari* community, especially the elders were always present in the temple, keeping a vigil on the lamp, cooking and at other times chatting with each other. The younger *kammari* and even male children frequently came and joined in the conversations or helped with the preparations. On enquiry I came to know that although all of them belong to a *kammari* family, they do not necessarily pursue their family occupation. Most of them were part time blacksmiths, some of them were schoolteachers, while others have taken up carpentry or bronze-smithing on a full-time basis. The senior *kammari* explained that if someone were born into a

traditional *kammari* family, he would always remain a *Kammari*. Change in profession cannot take their family identity (*Jati*) away.

### ***The Mammayee cult in Uploor and Konasamudram***

The cult was in its last stages of decline in Uploor and Konasamudram. In Uploor, the chief of the *kammari* community, a senior blacksmith named Marpaka Rajanna, said that the temple and the festival has lost its importance due to constraints of fund and increasing lack of awareness among the younger generation about the goddess. The modest temple here is also situated on a slag-heap, near a cluster of *kammari* houses. However, when we visited the temple on *Ugadi*, there was no sign of festival preparations. The *kammari* living around the temple identified the deity to be *Durga* and *Lakshminarasimhaswamy*. They admitted that they did not know anything about the cult and had continued maintaining the temple emulating their predecessors – “*We don’t know about the God. We worship our smithing implements at home, like our predecessors did*” (Pioneering Metallurgy Festival Field Notes, 2010).

### ***The final day rituals at Ibrahimpattanam-K***

The final day of the festival is considered to be the most important. The ritual performances on the final day are aimed at renewal of relationships on different levels—with the cult, with the craft, within each other in the community, but most importantly, the renewal of prestation relations with the farmer clients through a symbolic reenactment of the existing traditional contract between a *kammari* and his client farmers.

The rituals of worship inside the temple began before sunrise. Three generations of male members from all the *kammari* households at Ibrahimpattanam-K were present at the temple for the final worship. Cooked rice, pulses, maize, *jagory*<sup>17</sup>, coconut-water and turmeric; the primary agricultural products of the region and main ingredients of the local diet, were made together into balls of offerings and placed on teak leaves in front of the deity and the smithing implements (Fig. 10.4). The idols of the goddess *Mammayee* and *Nandi*, the image of *Brahmamgaru*, and the implements were all freshly decorated with turmeric and vermilion pastes and flowers. The *kammari* also placed new strands of turmeric-dipped sacred threads in teak containers in front of the deity. Apart from the central importance of turmeric in Indian cooking, it is also considered to be a purification agent, that removes metaphysical and physical pollution. Turmeric therefore is used in a number of important Hindu rituals. In most forms of Hindu weddings, for example, both bride and groom are bathed in turmeric paste and water on the morning preceding the wedding ceremony to cleanse their body and soul as the couple entered a new phase of their lives. Therefore, it is not surprising that turmeric is an important ingredient in annual *Mammayee* cult performances that seek to renew existing inter- and intra-community socio-economic relations.

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<sup>17</sup> Treacle made from the extract of palm trees.





Figure 10.6 Final Day Rituals:(from top right): 1. Mangalarati, 2. Fresh sacred-threads worn, 3. Hierarchical March of the kammari through the village, 4. Inauguration of Smithy (Pioneering Metallurgy Archives)

As a part of the renewal ritual, the *Viswabrahmins* discard their old sacred thread. New sacred threads were infused with the blessings of the deity. While at present this ceremony takes place privately at individual household shrines in a majority of the villages in the study area, at Ibrahimpatnam-K this is traditionally done assembling in the courtyard of the temple after completion of worship on the final day of the festival.

The final *puja* of the festival started with chanting of *Mangalarati mantras* (Fig. 10.6), led by Peddagangaram and two other senior *kammari*. This was followed by a cluster of five songs, sung in praise of *Mamayee* and *Brahmamgaru*. The *puja* was completed by 6 a.m. with the first rays of sunrise. Three senior *kammari* who served as priests replaced the old sacred-thread on the picture of Veera Brahmendra Swamy with a fresh turmeric dipped thread. This thread will not be replaced until the same festival the following year. The *kammari*, who had assembled in the temple-yard since dawn, were now allowed to take their smithing tools out of the shrine, along with their teak leaf container of turmeric-dipped sacred-thread strands. The family members (including male children) of individual *kammari* families assembled together in the temple courtyard to tie their new sacred-threads (Fig. 10.6). Elder family members tied a strand of the thread around the right arm of their sons, who returned the favour to their fathers in the same way. This ritual performance is repeated for all the generations of *kammari* present in the temple yard. The *kammari* then individually arranged strands of their sacred-threads to be worn by them. The number of strands used in the sacred-threads depends on an individual's life-stage. After the *Upanayanam*, or the formal sacred-



thread ceremony, performed normally before puberty, the sacred-thread consists of a single knot or head (*mudichu*), consisting of three strands of thread. Another *mudichu* of three additional threads are added after marriage and a third *mudichu* of three threads, representing an *uthariyatham* or body-cloth is also worn around this time. Therefore, a married adult Brahmin wears nine strands of sacred-thread knotted into three *mudichus*. The *Viswabrahmins* have adopted this tradition to prove their equality with the *Brahmins* and claim a higher position in the caste-structure.



*Figure 10.7 Single strand of turmeric-dipped sacred thread being tied on a blacksmith's hammer as a part of the final day rituals of the Mammayee festival at Ibrahimpattanam-K. (Pioneering Metallurgy Archives)*

This ritual is followed by tying a single strand of sacred thread onto the smithing tools by the *kammari* who still worked as blacksmiths (Fig. 10.7). Finally, two senior *kammari* who served as deputies of Peddagangaram read predictions for the coming year for individual *kammari* in a bowl of wheat. One of them shut his eyes to pull out a few grains of wheat from a container, as individual *kammari* family-members are named. The grains were placed in another empty container and their number counted, by the other senior *kammari*. An odd number grains purported good fortune for the year to come while an even number indicated bad luck. Those who got the latter, requested Peddagangaram to perform a certain fate-cleansing ritual at a later date.

After these rituals were completed, the *kammari* emerged from the temple in a single-file procession, shouldering their smithing tools with Peddagangaram and two other senior *kammari* leading the way (Fig. 10.6). After marching a short-distance along the village road, to the full view of assembling villagers, the *kammari* families who still owned smithies, performed a smithy inauguration ritual (Fig. 10.6). First, the eldest male *kammari* of the family sat at the forge and hammered the anvil five times. The younger male members of the family repeated this gesture. I asked Peddagangaram about the significance of this ritual. He explained that it is essential for a *kammari* to pay homage to the anvil and the hearth before the work for the year could commence—

*“The smithy makes who we are. The anvil and the hearth give us grains [sustains us]. We are connected with them and they will bless us with good year”*

(Pioneering Metallurgy Festival Field Notes, 2010)

I told Peddagangaram that I had observed that they had hammered the anvil five times, and that earlier five songs were sung in the praise of *Mamayee* and *Brahmamgaru*. I asked him if five was an important number for the rituals, and why. Peddgangaram did not know the answer to the question and said they were just following the ways of their predecessors—

*“There may have been a reason. But we don’t know.”—He said.*

### ***Ritual forging of new agricultural implements***

As mentioned in the previous chapter, an integral part of the inauguration ritual, is the mandatory custom for forging implements related to agriculture. The implements, forged by the seniormost smith of the family, must then be carried to the houses of their customary farmer clients, as a performance of symbolic renewal of their economic ties (Fig. 10.8). If the farmer accepts the implement, and hence, the offer of the continuation of their relationship, they have to reciprocate by providing rice, turmeric, potatoes, onions and vegetables—the basic ingredients required for a full meal for the *kammari* family.



*Figure 10.8 Ritual forging of agricultural implements and delivery to the client farmer households (Pioneering Metallurgy Archives)*

If the implement is not accepted, the terms of exchange needs to be renegotiated in the days following the end of this festival. The *kammari* can also express an intention to renegotiate the terms or terminate the economic relationship with individual client families by not sending new implements to them. Although this performance is carried out in late-March or early April, the *kammari* do not normally get the orders from their clients until the middle of May, closer to the onset of the sowing season following the summer-monsoon. Peddagangaram and other *kammari* manufactured iron hinges for bullock-cartwheels. The teenagers of the family carried them to the houses of their existing farmer clients on a bicycle (Fig 10.8).

### ***Interpreting the rituals***

The rituals of *Mammayee* festival play out in two distinct performative spaces starting with the space inside the temple, closed to other communities, and after the completion of the *puja* on the final day, the open village space, including the smithy of the *kammari*, which are normally on the side of the village roads in the front of *kammari* residences.

I explain the ritual performances discussed in this chapter by based on Turner's (1995) concepts *Liminality* and *Communitas*.

“Liminal entities are neither here nor there; they are betwixt and between the positions assigned and arrayed by law, custom, convention, and ceremonial. As such, their ambiguous and indeterminate attributes are expressed by a



rich variety of symbols in the many societies that ritualize social and cultural transitions.”

(Turner, 1995:95)

A liminal space is, therefore, where these transitions take place. A ritual space where the sense of community or *Communitas* transcends the sense of individual self is an example of liminal space. Expanding on Turner’s concepts of *Liminality* and *Communitas* in ritual processes, Koster (2003) suggested that a clearly demarcated space is important in ritual performances. It is in this ritual space that a sense of individual identity is reduced in order to achieve a sense of *Communitas* (community), brought about by different forms of *technologies* or performances. Van Gennep (1966) termed this transcendence of individual self in a ritual space and its replacement with a community identity as *ego-loss*.

The annual renewal ritual of *Mamayee* at Ibrahimpatnam-K (and that of predominant *Viswabrahmin* ritual that I will discuss later in this chapter) is a renewal of this sense of *Communitas* among the *kammari*. By collectively ceasing to work, arranging for the daily *puja*, cooking, eating, sleeping and spending time with each other in the temple compound are *ritual technologies* through which the *ego-loss* is achieved and a sense of community is renewed. The *liminal* space of the temple does a lot more than forging a community identity. The same ritual technology that reproduces the sense of *communitas*, also defines the internal power hierarchies of the community. By reserving the right to perform priestly duties for the deity, controlling access to the shrine during main *pujas*, seek



blessings on behalf of the community, and monitoring the well-being of the *kammari* augmentation of their future through ritual cleansing activities, Peddagangaram and two other senior *kammari* entrench their position as leaders of the community in Ibrahimpatnam-K.

However, for identity and power relations to sustain and function in desired ways, a consensus must be attained. Consensus can be achieved by putting relations of power into action either by embodiment through symbols (Geertz and Marić, 1972) or interactions among different actors in the power relation, or both (Foucault, 1982, Gorringer and Rafanell, 2007). In the current economically and socially adverse conditions of the *kammari* of Ibrahimpatnam-K, it is crucial that the embodiment of identity and power take place not just in the closed space of the temple but also in the open village space, witnessed by the entire village community. After conclusion of the *puja* and associated rituals on the final day of the festival, the members of the *kammari* community emerge from the *Mammayee* temple wearing only a fresh white *dhoti* around their waist, sporting new sacred threads and their smithing tools over their shoulder (Fig. 10.6). They continue their march through the winding streets of the village, led by youngsters playing drums and blowing conch-shells, which helps in assembling more onlookers on both sides of the road to witness the march. This ritual performance in the open space of the village has a profound effect on the assembling audience. The synchronized march is an embodiment of the *communitas* forged inside the liminal space of the *Mammayee* temple. It is also a statement of collective power and aspects of identity—the sacred thread emphasizing the *Viswabrahmin* narrative of ritual

superiority over the *Go-Brahmin* (see chapter 6 for detail discussion on this), and smithing tools embodying *kammari* identity. The hierarchy of the queue visually underlines internal power-relations within the *kammari* community. The ritual renewal of conventional prestation relations with farmer clients also takes place in open space. The farmers are required to accept or reject the newly-forged implements in the open space of the courtyard outside their house. Grain and other items of food offered have to be brought openly outside the house and given in exchange of the implements.

The primary objectives of the annual *Mammayee* festival are, therefore, ritual revitalization and embodiment of *kammari communitas*, and renewal of crucial prestation relations with the farmers. At Ibrahimpatnam-K, where the prestation relations have not completely ruptured, the festival continues to play a central part in performance and perpetuation of these relations. However, in neighboring Uploor and Konasamudram villages, mechanization of agriculture and other causes outlined in the previous chapter, have altered the traditional power structure. This has affected the cohesiveness of the *kammari* community and the cult of *Mammayee*. An *ausala* family presently maintains the *Chinna Mammayee* temple of Konasamudram, once patronized by the local blacksmiths. The *Pedda Mammayee* temple in the same village, has always been owned and maintained by the *kanchari* community, and the cult is thriving till this day.

### 10.3 The *Brahmamgaru* Cult:

*“My grandfather constructed this [Veera Brahmendra Swamy] temple in 1994. He had a dream one day where he was instructed by the Viswabrahmin to do something for the community. He decided to build a temple where the community can come together.”*

Said the Thiparthi Sathyanarayana (49), a 43-year-old carpenter and the chief priest of *Veera Brahmendra Swamy* temple at Anantharam, near Jagitial. Mahesh and I met Sathyanarayana in the front yard of the temple at Anantharam. Sathyanarayana’s family owns the temple and its maintenance is conducted through generous donations from devotees of both *Viswabrahmin* and non-*Viswabrahmin* communities. During fieldwork, I found the cult of Veera Brahmendra Swamy (Fig. 10.9), popularly known as *Brahmamgaru*, to be vastly popular among all the rural and urban *Viswabrahmin* groups of northern Telangana. While the *kammari* and *wadla* communities swiftly abandoned the cult of *Mamayee*, the *Brahmamgaru* cult has gained their patronage and worship. Even in the relatively active *Mamayee* temple at Ibrahimpatnam-K, the large image of Veera Brahmendra Swamy has become the main object of worship. In this section, I will analyse the reasons behind the burgeoning popularity of the *Brahmamgaru* cult. Providing a brief biographical overview of Veera Brahmendra Swamy is a good starting point for the analysis.



*Figure 10.9 Veera Brahmendra Swamy. Notice major Hindu deities showering their blessings on the saint. The figure with folded arms at his feet is the saint's chief disciple, Siddaiah, a muslim. (Source: Wikipedia)*

### 10.3.1 Brief biographical sketch of Veera Brahmendra Swamy

There is no historical record that mentions the existence of Veera Brahmendra Swamy (Fig. 10.9). Whatever we know about the saint is handed down through oral traditions from the songs of *Ronja* and *Panasa*, the communities of mendicant minstrels and bards patronized by the *Viswabrahmins* of Telangana. These oral traditions have very recently been put into writing and compiled into a standardized biography (Pillai, 1991). The life of Veera Brahmendra Swamy has also attained universal popularity in Andhra Pradesh following the release of a popular biographical feature film about the saint in 1984 titled *Srimadvirat Veerabrahmendaswamy Charitra*. His devotees remember *Brahmamgaru* today as a symbol of *Viswabrahmin* identity and a prognosticator whose predictions are compiled in the *Kalajnanacharitam*, a collection of apocalyptic predictions.

Based on the tumultuous nature of the predictions in the *Kalajnanacharitam* and a constellation of highly interpolated oral traditions, it can only be assumed that *Brahmamgaru* lived and preached in the 17<sup>th</sup> century, during a highly volatile period in socio-politics of the Rayalseema region in the south-western part of Seemandhra state. According to the oral traditions, Veera Brahmendra Swamy was born into a *Viswabrahmin* carpenter family in the hamlet of Banaganapalle, in present day Kurnool district of Seemandhra. He had preached and died in the village of Kandimallayapalle of Kadapa district in Seemandhra. Both these places are located in Rayalseema, a drought-ridden and impoverished region of modern day Seemandhra.

Rayalseema entered a period of uncertainty following a decisive defeat and decline of the Vijayanagara Empire at the battle of Talikota in 1565. The power vacuum it created, gave rise to a number of small and fiercely competing *polygars* in the region. The lack of a powerful central authority and regular invasion and subjugation by first, the Marathas and then Haider Ali and Tipu Sultan of Mysore, has largely contributed to the instability of the region (Brackenbury, 2000 [1875]). This insecurity found reflection in the writings of contemporary poet-ascetic, Vemana (d. 1730), and in the apocalyptic verses of the *Kalajnanam*, attributed to Veera Brahmendra Swamy. Another recurring theme in both these semi-contemporary works is that of the vision of a caste-less society. Influenced by the non-dualist philosophy of the *Bhakti* movement, the satirical verses of Vemana (see Brown, 1993), and prognostic teachings of Veera Brahmendra Swamy critiqued rigid *Brahmin* dominated caste-system of the time and advocated a subversion of *Brahminical* social order—

“A day will come when people said to be of the highest birth will be less honoured, while those said to be of lesser birth will receive more honour [from society].”

(Ayalasomayajula, 2010)

Veera Brahmendra Swamy’s message of a more accommodative society had drawn devotees from various levels of society: from the Nawab of Kadapa to members of the “untouchable” *Madiga* community. His chief disciple was Sidhhaiah, a Muslim. Oral traditions suggest that *Brahmamgaru* and his disciples



travelled widely around the Rayalseema region to preach the message of non-duality by challenging the Brahmins in debates and by conducting miracles. In the course of his journeys the *Panchanam*, or “the five” (*Viswabrahmin* groups) refused him food and water and tested his divinity by confronting him. They were won over by a miracle and *Brahmamgaru* promised to protect them from the forthcoming apocalypse if they continued to worship him. He had also taught them the discourse on the origin of *Viswabrahmins*, which was discussed in chapter 6 (Ayalasomayajula, 2010, Pillai, 1991). The *Brahmamgaru* cult, with its spiritual centre at Kandimallayapalle, has therefore, become central to the *Viswabrahmin* community identity of southern part of Andhra Pradesh and Karnataka.

### 10.3.2 The Brahmamgaru cult in historical context

However, the popularity of the *Brahmamgaru* cult in northern Telangana is relatively recent. Neither Thurston (1975) nor Hassan (1920) had mentioned the cult in their corpus on “castes and tribes” in southern India. Brackenbury (2000 [1875]), in his *Gazetteer of Cuddapah District* had briefly mentioned the presence of a highly revered prognostic saint named *Brahaswamy* in a village near Lingaladinne in Kadapa district—

“A similar case [of canonization] to be seen in Lingaladinne in Prodattur Taluk, where there is a temple of Brahaswamy, a Brahman who died in the village about twenty-five years ago. He attained this unusual honour, partly by his asceticism, but chiefly by his accurate prognostication of future

events, and his miraculous power of being in several places at the same time.”

(Brackenbury, 2000 [1875]:66)

However, this cult, along with those of other local 16<sup>th</sup>-17<sup>th</sup> century saints likes *Govindaswamy* (Palgularallapalle), *Gurappa Swamy* (Vennapalle), *Muniswamy* (Prodattur), *Appaiah* (Kalasapadu) were very localized and did not appeal to a large set of devotees outside the region. What united these saints in the subject of their preaching was the tumultuous historical context of Rayalseema and the eclectic society they envisaged and preached of, influenced by the narrative of *Bhakti* and *Sufi* philosophies. During my fieldwork, I have visited seven *Brahmamgaru* temples (Fig. 10.10), mostly in Karimnagar district, and met with the managing committees of these temples. All of them were constructed after 1970 (Table 10.1). The owners and the committee members of most of these temples cited the need for forging *Viswabrahmin* unity and safeguarding the interests of the community as reasons behind the establishment of these temples. Plans for establishing new *Brahmamgaru* temples have been drawn up in Kalleda and Arnakonda villages by the local *Viswabrahmin sangams*. During my interactions with the elderly *kammari*, they have often remarked that almost 30-40 years ago, groups of *Ronja* and *Panasa* travelled through villages of Karimnagar to



*Figure 10.10 Congregation of Viswabrahmins in the Brahmagaru temple in Katkanapally of Karimnagar. In contrast to the Mammayee temples, the participation of women in Brahmagaru cult is noticeable. (Source: Sangampally Viswabarhmin Temple)*

propagate the teachings of *Brahmagaru* through musical and dramatic performances. That was how they had learnt about the life, teachings and predictions of *Veera Brahendra Swamy*. In the words of Bawanapally Kammari Bhumaiah (45) of Sangampally—

*“Now no one listens to the Brahmagarikatha [life and teachings of Veera Brahendra Swamy]. You know, when we were kids and when we were young, some travelling saints will come to the village and recite Brahmagarikatha for everyone. We went and listened. That is how we know about roots and our community.”*

*Table 10.1 Location, date of establishment and maintenance details of some Viswabrahmin Temples in teh study area*

Location of the Temple	Year Constructed	Maintained by
Anantharam	1980-1994	<i>Kammari &amp; Wadla</i>
Katkanapally	1970 (Presently under renovation)	<i>Ausala &amp; Kanchari</i>
Jagitial	2006	<i>Kammari &amp; Wadla</i>
Choppadandi	2012	<i>Kammari &amp; Wadla</i>
Jangaon	2009	<i>Kammari &amp; Wadla</i>
Kothapally	2005	<i>Kammari &amp; Wadla</i>

#### **10.4 The *Viswabrahmin Sangams*: role of caste-associations in coping with the decline**

Closely associated with a shift towards an homogenized *Viswabrahmin* identity (Chap. 6.2 and 6.3) and the emergence of the *Brahmamgaru* cult in northern Telangana, a recent mushrooming of *sangams* or caste-associations was also observed. Displaced members of the *kammari* and *wadla* communities have come together in different villages to form these *Viswabrahmin sangams* in order to ensure welfare of the community and safeguard their collective interests by

petitioning the village *panchayat* (self-government) for betterment of their lives. Although a majority of these village *sangams* are named *Viswabrahmin Sangams*, participation in these associations is often only restricted to the *kammari* and the *wadla*—the two most displaced craft communities in the region. The *kanchari* and the *ausala* often form their own *Viswabrahmin Sangham*, which are mostly located in the urban areas, and very occasionally, in large villages where the members of these communities still reside.

#### **10.4.1 *Viswabrahmin* caste-associations in South India: general overview**

The *Viswabrahmin sangams* therefore, are political bodies working in a democratic framework through which various *Viswabrahmin* groups collectively voice their concerns and sometimes fulfill individual and collective political ambitions by running for local and state level elections.

#### ***An Historical overview of the Viswabrahmin caste-associations in South India***

The first recorded *Viswabrahmin* caste-association, the *Viswakarma Kulabhimana Sabha* (lit. The Association for [preserving] Viswakarma Pride) was founded in Madras (mod. Chennai) in 1903. It was established by a group of educated members of the *Viswabrahmin* community in order to ensure the welfare of the members of the community.

*An association, called the Visvakarma Kulabhimana Sabha, was established in the city of Madras by the Kammalans in 1903. The objects*

*thereof were the advancement of the community as a whole on intellectual and industrial lines, the provision of practical measures in guarding the interests, welfare and prospects of the community, and the improvement of the arts and sciences peculiar to them by opening industrial schools and workshops, etc.*

(Thurston and Rangachari, 1975[1907]:III-123)

This period in the early 20<sup>th</sup> century is characterized by industrialization in the sub-continent, coupled with importation of industrially produced goods from England. Several traditional craft communities, including the ones within the *Viswabrahmin* fold, were adversely affected by this. The timing of the formation of the *Viswakarma Kulabhimana Sabha* is therefore extremely significant. As a stated objective, the association wanted to promote intellectual (modern education) and technical pursuits on industrial lines in order to empower the community to cope with the rapid pace of industrialization. In 1914, the *Tamil Nadu Viswakarma Mahajana Central Association* was also founded in Madras city for the welfare of the members of the *Viswabrahmin* caste (Mahajana, 2015) and still remains operational today.

In 1947, the year of India's Independence, the *Akhila Thiruvithamkore Vishwakarma Maha Sabha* was founded in Travancore state (mod. southern Kerala), which later transformed itself into a state-level association called *Akhila Kerala Visvakarma Maha Sabha* in 1957 (Foundation, 2011a) and is still operational under the same name. A similar state-level organization representing



the interests of the *Viswabrahmin* community of Karnataka, the *Akhila Karntaka Viswakarma Mahasabha* was also established in 2001, and has since been active in representing the interests of the *Viswabrahmin* communities in the state (Mahasabha, 2013).

In South India, apart from the new states of Telangana and Seemandhra, all other states, therefore have active *Viswabrahmin* caste-associations at state level. A majority of these state-wide caste associations follow a democratic framework, where members are elected at set intervals. Some well-organized state-level caste-associations, also have a state-level network with subsidiary caste-associations in each administrative down to the *mandal*<sup>18</sup> (or *hobli*) level. In Telangana, the individual village level *Viswabrahmin sangams* nominally function under *mandal* level associations. The leaders of the *village sangams* occasionally attend meetings at the *mandal* level to represent the demands of the *sangam* members of their villages, or to solve any disputes that the leaders are unable to solve by themselves. However, at least in the case of my study area, the village *Viswabrahmin sangams* do not necessarily depend on the *mandal* level associations for their regular functioning.

### ***The Role of the state-level Viswabrahmin associations***

These state-level caste associations aim to achieve the welfare of the *Viswabrahmin* communities in three ways. First, by reinforcing the concept of a

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<sup>18</sup> An administrative division which generally includes a cluster of several villages in an area.

unified *Viswabrahmin* identity among all the five groups of craftsmen, through a discursive technique that reminds the *Viswabrahmins* of their glorious achievements in the past. A common identity has to be produced and a unified front visibly maintained in order to effectively petition for more rights within a democratic state apparatus. Since a homogenous *Viswabrahmin* caste identity is of comparatively recent origin, it is essential for these state-level caste associations to create a common identity forged through a shared mythologized past. The website of the *Akhila Karnataka Viswakarma Mahasabha* (Mahasabha, 2013) is a case in point. The homepage of the website follows this discourse very effectively by listing the achievements and contributions of the *Viswabrahmins* to the human civilization:

“Lord Vishwakarma is the creator of the Universe. The universe is created with such precision and vision that it moves ahead efficiently very systematically. He has provided special status to human beings among his creations...Right from the beginning the Vishwakarma Community is engaged in 5 distinct occupations, creating articles in their ordained field. They are blessed with the creative genius inherited from Lord Vishwakarma. It is evident from the Master Pieces that the Vishwakarma Geniuses have created from time to time that this creative genius has been passed on from generation to generation. The Vishwakarma Community did not limit their creations to Hindu Community. They have contributed in the constructions of all communities. The articles they created are for the use of all communities transcending any and all communal barriers. The following bear testimony to the genius of Vishwakarmas in the field of artistic

creations...The Hindu temples have been constructed with perfect planning according to the scriptures. Idols are created with such artistic beauty that the deity instantly generates reverence in the hearts of the devotees. The sculptures adorning the temples with a theme figuratively narrate the Stories of Puranas and Social environment of the period of creation.

The wonderful creations of Vishwakarma Community have survived because of its quality, aesthetic beauty and social protection and is now demonstrating the past glory and opulence of this country.”

(Mahasabha, 2013)

The page first alludes to the common origin of all the *Viswabrahmins* as the progeny of God *Viswakarma* (Chap. 6.2). Then it goes on to manufacture a sense of pride among the members of the community by revisiting their philanthropic contributions at different times in the past. Finally, in order to reinforce this, a list of major historical Hindu, Buddhist and Jain monuments are provided, and projected as the creations of the *Viswabrahmin* community. This does not only create a homogenous identity of the *Viswabrahmins* in the present, it also re-writes history by extending this identity to the distant past, which provides a sense of eternity among the community. The *Global Viswakarma Foundation*, an organization run by the *Viswabrahmin* expatriates in the US and Canada takes this discourse a step further by making the *Viswabrahmin/Viswakarma* identity transcend both time and space.

“The May Day celebrations also resulted from the actions of the Visvakarma brethren of America. It started in Chicago with the strike of carpenters for stipulating the eight-hour per day job schedule.”

(Foundation, 2011b)

Secondly, the caste-associations act as the spokespersons for the *Viswabrahmin* community in the state or the region and petition on their behalf to the government for the welfare and political representation of the community. The *Akhila Karnataka Viswakarma Mahasabha* have outlined the following objectives in their “Mission Statement” on their website:

“Worried about the plight of the community, Shri Nanjundi Vishwakarma realized the need to organize the community to bring awareness about the impending catastrophe and to work out ways and means to face the reality... To save the community from total catastrophe and to instill (sic) hope, the Mahasabha is making efforts to persuade the Governments to consider and implement the following immediately:

- Provide 3% exclusive reservation for Vishwakarma Community within 15% reservation for Backward Classes
- Checkposts (sic) and Commercial Tax departments should take stringent actions against smuggling of inferior quality ornaments and black market materials from outside the state.

- Constitute boards/corporations under Department of Industry exclusively for the 5 Vishwakarma crafts i.e. Carpenter Brazier Sculptor Goldsmith and Blacksmith and appoint the Chairman representing the respective field.
- Provide separate sheds in the villages for Blacksmith and Carpenter families
- Reintroduce the order issued by the previous Government on the atrocities on Gold and Silver artisans and stop the atrocities forthwith.
- Provide land to Vishwakarma Swamijis in each district and other complementary help to improve the educational status of the community.
- Provide political representation to Vishwakarma Community from Gram Panchayat to Rajya Sabha proportionate to their population.
- Declare Vishwakarma Jayanthi as General Holiday.”

(Mahasabha, 2013)

Finally, these caste-associations seek to attain the welfare of the *Viswabrahmin* community by undertaking philanthropic projects. The scope of the projects depends on the assets of each association. These assets normally constitute the contributions from the community members as membership fees and monetary donations from the more affluent members of the community. A part of these accumulated assets go towards philanthropic projects which include providing educational scholarships to children from *Viswabrahmin* community and in helping financially-challenged *Viswabrahmin* families.

#### 10.4.2 The *kammari* Community and the *Viswabrahmin Sangams* in rural northern Telangana

The rural *Viswabrahmin sangams* I studied in northern Telangana are different from the state-level associations described above in one crucial way. I mentioned earlier (Chap. 6.3) that the *Viswabrahmin* identity is a relatively new import among the artisan communities of northern Telangana. This common identity is primarily forged by the priests of the *Viswabrahmin* temples through the *Brahmamgaru* cult. The concept of unity among the five *Viswabrahmin* groups is repeatedly reinforced by ritual performances, festivals and readings of *Brahmamgarikatha* (biography of Veera Brahmendra Swamy), where men and women from all the *Viswabrahmin* groups are encouraged to participate.

Below, I use the example of the *Manu Brahma Kammari Sangam* of Kodimiyala that I participated in during fieldwork to elucidate the workings of these community specific *sangams* in rural Telangana.

##### ***The Manu Brahma Kammari Sangam of Kodimiyala***

Kodimiyala is a large village situated 22km south of Jagitial. Locally, it has a reputation for its blacksmithing tradition. However, due to largescale disruptions in the lives of the *kammari* community in the village, only 6 out of a total 21 *kammari* families are able continue with blacksmithing, albeit on a very part-time basis. This includes Kasarla Narasiah (52; Chap. 6.4.4), a deft scissors-manufacturer who is currently out of full-time work. Apart from 21 *kammari* households, Kodimiyala also has an equal number of *kanchari* and *ausala* families (20 combined) and large



community of *wadla* (100 families). While the *kammari* and the *ausala* have their separate *sangams*, the *kanchari* and the *ausala* families form a common *sangam* for themselves. I asked the reason behind this to Padakanti Hanumanlu (53), a senior *kammari* and the president of the *kammari sangam* of Kodimiyala.

*“Kammari have a separate sangam because we get a lower pay [than other craftsmen]. There are separate sangams for kanchari and ausala and wadla too. They meet separately on Amavasya [new moon] mornings.”—*

Hanumanlu replied (53).

There is a newly-built *Viswabrahmin* temple in the village which is largely funded and maintained by the *ausala* and the *kanchari* communities in the village. The *wadla* and the *kammari sangams* are expected to contribute token amounts towards the fund from which the monthly salary of the temple priest is paid.

The *Manu Brahma Kammari Sangam* was established by the male members of the 21 *kammari* families in August 2012. The *Sangam* is currently presided over by Padakanti Hanumanlu, and is collectively responsible for looking after the interests of the *kammari* community of the village. They are also responsible to make decisions regarding different aspects of work. They decide whether a new *kammari* family migrating to the village be allowed to work in blacksmithing in the village. If allowed, it is the responsibility of the *Sangam* to decide which farmer clients would go to the new blacksmith. The *Sangam* also takes care of the financial needs of Kodimiyala's *kammari* families.

The male members from Kodimiyala's *kammari* families above the age of 18 can become members of the *Sangam*. It is not mandatory however, for the members to work as blacksmiths.

*"They do not have to do blacksmithing. But they must be from a Kammari house [community]."*—Hanumanlu explained (53).

While membership is not mandatory, it is expected that all the adult males will participate actively in the work of the *Sangam*. I attended one of the fortnightly meetings of the *Sangam* during fieldwork. In the meeting, the members present complained about a certain *kammari* who had taken up carpentry, and hence joined the *wadla sangam*. This "defection" was not taken in a good way by the members of the *kammari* community at Kodimiyala (54). It was suggested that becoming a member of the *kammari sangam* was a matter of the community's value and identity, and no one should be opposed to be a member.

*"He does not care about us. He is paying more importance to the wadla"*—Kasarla Narasiah said (54)

*"He also discussed his financial plight with all other communities, but not our own community"*—added another (54)



*Figure 10.11 The fortnightly meeting of the Manu Brahma Viswabrahmin Sangam in Kodimiyala (taken by the author)*

The members of the *Sangam* meet every month on the day of the *Amavasya* (Fig. 10.11) The meeting takes place at the *Yellamma* temple at the edge of the village.

*“Because the wadla sangam have taken the foot of the temple and the ausala-kanchari sangam meets in the shrine. We do not have any other space. So we chose this.”*—the treasurer of the *kammari sangam* explained<sup>19</sup>.

The treasurer also explained the financial role of the *sangam* (54):

<sup>19</sup> See Interaction 54 in Appendix I for a detailed description of a meeting of the *kammari sangam* in Kodimiyala.

*“When we started the Sangam, all of the 21 members had to contribute Rs. 500 to the common fund. This amounted to Rs. 10,500. That was our initial balance, which we must maintain all the time. On top of this, every month each member has to pay Rs. 50 in the monthly meetings. So we target to raise Rs. 1050 every month and add that to the community fund. This income is not consistent though, because some people do not attend... [Apart from this] Each member has two borrowing chits. Each chit is worth Rs. 3000. Every month we pay Rs. 3000 to all the members who are present in the meeting. If someone needs more then they can use their second chit as well. If he needs more than 6000 rupees, then he can borrow chits from other blacksmiths. But their consent is necessary. Every month, when they receive money, there has to be a guarantor for each of them and both of them has to sign the paper. At the start of the meeting next month, they have to return the principal amount of Rs. 3000 or Rs. 6000 and an interest of 5% above the principal amount. The purpose of this is to support the community members to start their own business, repay loans taken from the farmers etc.”*

#### **10.4.3 The *Viswabrahmin sangams* in rural Telangana: an expression of distinct group identities**

From the above discussion it is apparent that the *Viswabrahmin sangams* in the villages of the study area function very differently to the larger state-level *sangams*. As discussed above, the primary focus of the state-level *Viswabrahmin Sangams/Mahasabhas* is to promote the discourse of a unified and homogenous

*Viswabrahmin* brotherhood. The *Viswabrahmin sangams* in the villages on the other hand seem to be primarily used as a platform unifying specific artisan communities in a village, address their social and economic concerns, arbitrate disputes and eventually present a unified front for each group to bargain for community-specific welfare with the local administrative authorities. In a majority of the villages in the study area that have a *Viswabrahmin sangam*, the *kammari* and the *wadla* generally form a *sangam* of their own, distinct from the *sangam* of *kanchari* and the *ausala* communities. In villages like Kodimiyala (53, 54), where the *kammari* and the *wadla* communities are not on best terms with each other, the members form separate *sangams*. The *sangams* formed in the villages of the study area therefore do not serve as the crucible for forging a common *Viswabrahmin* caste identity. Instead, these *sangams* are the platforms through which discrete craft based community identities are expressed and the community's concerns voiced.

The distinct community-based composition of these *sangams* are also elucidated in the registered names of these associations. The *kammari sangam* in Kodimiyala is officially registered as *Manu Brahma Kammari Sangam*. The *kammari-wadla sangam* at Choppadandi (51), a *mandal* level association, is officially named *Manu-Maya Viswabrahmin Sangam*. These names implies the intention of the members of these *sangams* to tap into two distinct identities at the same time. First, in using the terms “*Manu Brahma*” and “*Manu-Maya*”, the members of the *kammari* and the *wadla* communities are tapping into the homogenous *Viswabrahmin* caste narrative. They consciously chose to identify themselves as the descendants of the

first two sons of God Viswakarma (*Manu* and *Maya*; Chap. 6.2). By articulating their identity using the language of the emergent *Viswabrahmin* identity narrative, these groups do not only delineate their own collective identities, a conscious attempt is also made to identify the “others” in the *Viswabrahmin* fold—an expression of the prevailing ideological conflict for symbolic dominance (Chap. 6.3) in the superficially homogenous *Viswabrahmin* caste, between the *kammari-wadla* and the *kanchari-ausala* communities of the study area.

It also appears from a preliminary survey that the traditional council of elders that presided over each craft community to make important decisions and solve disputes within the community and also between the members of the community and their clients, have been transformed into *Viswabrahmin sangams* in the village. These *sangams*, as we will see below, perform the same functions as these individual community specific councils, the only difference being their office bearers are elected by majority votes of the members, replacing the old method of selecting the senior-most members of the community for leadership. More and more of these *kammari sangams* or *kammari-wadla sangams* are emerging in the villages of the study area as the displacement of the practitioners of these traditional crafts become even more acute. The erstwhile councils of elders become ineffective as the transformations in technology, market and the appearance of the *shisha kammari* has irreversibly disturbed the status-quo between the *kammari* community and their client farmers. With the farmers now having a clear superiority in bargaining power, the authority of the council of elders to reinstate the status-quo has rapidly eroded. In order to protect community members from absolute socio-



economic displacement, prevent the *kammari* families from migrating to the towns and maintain the fabric of the collective identity of the *kammari* community in a democratic political setting, these councils had to transform into the *sangams* or the caste-associations of today.

## 10.5 Discussion

The competition for gaining an ideological dominance in the social space between different caste-like groups are not new in Indian history. I have mentioned elsewhere (Chap. 5.3), that the modern caste-based group identities emerged out of the chaotic period of Mughal successor regimes in the Indian sub-continent. In order to secure their fledgling and unstable powerbases, the rulers of the Mughal successor states sought the support of the *Brahmin* ritual specialists, who, in turn invoked the vocabulary of caste from the ancient *Sastric* texts to legitimize the authorities of their patrons and themselves. Several other communities across India were also coming together, often based on their common profession, to form caste-like entities to protect their interests at this period of political and economic volatility. The prevailing crisis resulted in the horizontal and vertical realignment of society, which contributed to creating the modern caste-identities (Bayly, 1999). In order to bargain for higher position in the societies of these successor regimes, the first caste histories started to be composed (Bayly, 1999, Das, 1982).

These identities later became crystalized and frozen under the British colonial rulers, who in their attempt to understand and define Indian society, created an oversimplified Pan-Indian notion of caste. The colonial censuses and ethnographic

studies using the “castes and tribes” model actively contributed to this simplification and homogenization process (Inden, 1990, Dirks, 1992). This created another crisis of identity among many communities, which led to the formation of the modern caste-clusters or associations through which the disgruntled communities could petition the government for more rights (Carroll, 1978, Conlon, 1974, Rudolph and Rudolph, 1960).

Historically therefore, the emergence of caste consciousness and caste-clusters can be traced back to the periods of crises. The increasing popularity of the *Brahmamgaru* cult and mushrooming of *kammari-wadla sangams* in northern Telangana can be understood from this perspective. The disruption of traditional prestation-based socio-economic networks, and the resulting decline in the demand for the services of the *kammari* blacksmiths have put the members of the community through a period of acute crisis, both materially, and in terms of identity. The members of the community are trying to negotiate and cope with these displacements by subscribing to a pan-Indian concept of a *Viswabrahmin* caste identity and by voicing their concerns through democratically formed caste associations at local and regional levels.

At the beginning of this chapter, I commented that the cult of *Mammayee* and that of *Brahmamgaru* represent two radically different socio-economic systems. The *Mammayee* cult thrived in a system where rural craft groups occupied a clearly demarcated social space in the power structure of the village. Individual artisan families had long established traditions of serving clients from the specific families in the village and their mutual economic interests were safeguarded by a custom of

regulated oral contracts. This regular interaction created a closer bonding between individual craftsmen and their clients than with other craft-groups within the same village—like the one existing between the *kammari* of Ibrahimpatnam-K and the farmer families they served for generations. The annual ritual performances of the *Mammayee* cult, therefore, served the purpose of bringing the individual *kammari* together to renew the sense of *Communitas*, underline intra-group hierarchy and demonstrate important markers of their identity (by displaying the sacred thread and the smithing implements) *to the rest of the village community*. More importantly, the cult reinforced existing economic relations with between *kammari* and their client farmers by ritual renewal of the custom regulated prestation system. The cult, therefore, functioned to articulate and reinforce the social, economic and political interests of individual craft groups within the power structure of each village. The scope and power of the cult hardly influenced social relations beyond a handful of individuals in each village.

The decades of the 1970s and 1980s were characterized by radical realignment of rural power structures in Telangana, following the rupture of traditional agrarian relations due to the adverse effects of the “Green Revolution” (see discussion in Chapter 9). The local cult of *Mammayee* effectively lost its symbolic relevance and functionality in a rapidly evolving rural power structure where the *kammari* and *wadla* found themselves isolated and disadvantaged due to a loss of economic security and social position. The prestation system, that the ritual performances of *Mammayee* cult actively reinforced, protected and perpetuated, showed signs of irreparable degeneration. As rural artisans began to emigrate from villages in

Telangana, the fabric of individual village-based traditional *kammari* organizations, led by community elders started to disintegrate. There was an urgent need to redefine the place of these erstwhile semi-isolated artisan by forging new horizontal and vertical alliances backed by a fresh ideological narrative of identity.

Veera Brahmendra Swamy's teachings provided these displaced communities with the perfect narrative. Having originated at a time of large-scale socio-economic and political upheaval, the teachings of *Brahmamgaru* struck a common chord with the anxieties of rural Telangana's artisan communities, to whom their world seemed to have turned on its head. Veera Brahmendra Swamy's *Viswabrahmin* roots, the *Viswabrahmin* perspective of creation that his teachings propagated and his message of an eclectic and egalitarian social order provided with the much-needed narrative of identity and place in contemporary society. And all of this came with the promise of divine protection of the devoted *Viswabrahmins* by *Brahmamgaru* in the face of an impending apocalypse. By making *Para-Shiva* or *Viswakarma* the creator of the universe, this new narrative had unequivocally placed the *Viswabrahmins* in a dominant position in social hierarchy. This alternative narrative served as a powerful tool to challenge the sacerdotal authority of the *Brahmins*, which the South Indian *Viswabrahmins* had historically opposed. The creation narrative also brought formerly isolated individual village based craft communities together by putting forward a coherent genealogy of all the *Viswabrahmins* in the world. Ideologically, *kammari*, *wadla*, *kanchari*, *shilpi* and *ausala* as descendants of five saint brothers, who had emerged out of the five faces of the creator *Viswakarma*. It was now possible for *Viswabrahmins* to access and define their

individual and collective places in the world, and feel connected in kinship with the *Viswabrahmins* across space and time. As a result, the imagined community of the *kammari* and other *Viswabrahmin* craft communities increased manifold in scope—from relatively isolated individual village units to state and cross-regional levels. It is also important to note that the *kammari* and the *wadla* communities actively manage a majority of these *Brahmamgaru* temples. They also play a leading role in propagating the teachings of Veera Brahmendra Swamy. Members of the *wadla* community often serve as chief priests in these temples. This is significant because the rupture (in the prestation system) directly affected the *kammari* and the *wadla*. They have since then vigorously promoted this new cult as a bid to improve their own socio-economic position. Although craft remained an important aspect of *Viswabrahmin* identity, active involvement in the craft was not a necessary condition to be a part of the community. Armed with advancement in transport and communication sectors, dispersed *Viswabrahmin* communities were now able to come together under the umbrella of the *Brahmamgaru* cult which empowered them to effectively articulate their identity and demands in contemporary democratic set up of India.

While the *Brahmamgaru* cult has provided a platform to express language of unity and equality among all five craft groups in the *Viswabrahmin* caste, the community-specific *Viswabrahmin sangams* have provided a means to address the concerns of each craft community through a democratic framework. These *sangams*, as was explained, have also provided an opportunity to delineate the individuality of each

craft community in rural space and provide an outlet for expressing a strong undercurrent of conflict for ideological superiority among different groups.



## CHAPTER 11

### CONCLUSION

#### 11.1 Introduction

In Chapter 1 of this thesis I discussed a large body of archaeological, ethnographic, scientific and historical literature on iron-working in the Indian sub-continent. I demonstrated the disconnect between these different types of datasets (Chap. 1.5), which impedes a holistic understanding of the social and historical contexts of pre-industrial iron-working in different parts of the sub-continent. The current work has attempted to fill this gap by incorporating a wide range of datasets to study pre-industrial iron-smelting in northern Telangana, Central India. Although the primary data for this research was derived from a sustained ethnographic study of different iron-working communities in the study area, archaeometallurgical evidence and historical, archival and landscape data were extensively used to create the context in which the ethnographic data was analysed.

This final chapter attempts to construct a coherent, interconnected set of conclusions from the varied data presented in the preceding chapters. I have discussed the data at length within each chapter. The conclusions presented here, are therefore, a synthesis and reprise the ‘story’ that has emerged from the work. First, I will discuss my findings about the intricate relationship between iron-smelting, iron-smelters and the landscape. This will be followed by a discussion about the decline in traditional iron-working (both smelting and smithing), and its effects on the position of different iron-working communities in the social space of

northern Telangana. In the final section, I explore how the methods used and the data presented in this thesis can be used as an analogical framework to study pre-industrial iron-smelting in the Indian sub-continent and outline possible directions for future research.

## 11.2 Smelting, Smelters and Landscape

In Part A (Chapters 7 and 8), I attempted to understand and reconstruct the organization of pre-industrial iron-smelting technology through ethnographic study of the *mudda kammari* community in northern Telangana. In three seasons of fieldwork, I interacted with a small group of surviving elder members of the *mudda kammari* community, who had either participated in or seen iron-smelting in the area during its final days. Their individual and collective memories were supplemented with the archaeological record of smelting in the study area to provide a more nuanced understanding of the technology. GIS was used to map the distribution of *mudda kammari* communities and the iron smelting sites in the landscape, and added another layer of understanding to the ethnoarchaeological data.

In the study area, smelting was done by the specialist *mudda kammari* community in a slag-tapping bloomery furnace using iron-rich magnetite sand (*wuske*) brought down through erosion from the surrounding low hills during the monsoon. *Wuske* was collected from the beds of these seasonal streams after fresh rainshowers and stored in the *mudda kammari* settlements. In Karimnagar, where the hills were more scattered in the landscape, the *mudda kammari* often collected *wuske* by

placing granite rifles at the junctions where irrigational canals bringing water from these scattered hills drained into reservoirs.

The ethnographic data from this project contradicted existing literature on the role of pre-industrial iron-smelting on deforestation. It has been proposed by several environmental historians (e.g. Sivramkrishna, 2009) that the overwhelming and unmitigated felling of trees by iron-smelters for making charcoal had caused large-scale deforestation in India and elsewhere in the early 19th century. The evidence from northern Telangana, however, suggests that the *mudda kammari* were well aware of the consequences of unmitigated exploitation of forest resources on their craft and took steps to prevent it. Ethnographic evidence presented in this thesis reveal that the smelters selectively exploited (along with two other species) the *Acacia catechu* tree from forests that are primarily dominated by teak trees. This selective exploitation and coppicing ensured that these resources, and the forest in general, were never fully exhausted. The ethnographic record also indicates that it was only after the implementation of forest regulations by the Nizam's government in the late 19th and early 20th centuries that these preferred species of trees were exhausted due to over-exploitation along the edges of the forest. These forest regulations prevented the *mudda kammari* from venturing deep inside the forests to collect wood for making charcoal. Hence, they were forced to exploit the clusters of *Acacia catechu* along the forest boundaries, leading to over-exploitation and ultimately, exhaustion of the resources, which in turn adversely affected the smelting industry.

In Adilabad smelting generally took place within the forests, not far from the ore and charcoal resources, and in northern Karimnagar beside tanks within the boundaries of villages. When pre-industrial iron-smelting started to decline in the late 19th and early 20th centuries, most of the smelting activity in southern Adilabad seemed to have been concentrated in the village of Dasturabad, which still has the highest concentration of *mudda kammari* families in the area studied. Smelting was normally conducted in at night to allow proper inspection of the colour of the flame inside the furnace and monitoring of the smelt progress. According to the ethnographic data, the smelting started after midnight, and was completed early in the morning after 6-8 hours of continuous bellowing. After successful smelting, the *mudda* (bloom) was subject to a refining process where it was first cut in half and then continuously hammered in a refining hearth to squeeze out the slag inside it, and finally either hammered into a *lappa* (bar) or cut into wedges. The *lappa* was then cut and divided among the smelters who participated in the process; in turn, they sold the smelted iron to the *Sahukar* (middlemen), who transported it to regional markets. It is possible that the *kammari* would sometimes refine the iron once again at their smithy before forging to get rid of remaining impurities, as evidence from Ayisapur/Habsipur (chapter 7) suggest.

Although the technology of smelting iron was uniform throughout the study area, the organization of production and the level of official control over smelting varied. In Adilabad, at least in the late 19th and early 20th centuries, the senior *mudda kammari* and their younger apprentices were themselves directly involved in all stages of smelting. In Karimnagar, however, since the ore and charcoal sources

were more dispersed in the landscape, and smelting was organized on a smaller scale, it required the involvement of different communities along the *chîne opératoire* of production. Labourers from other fringe-communities were employed by the *mudda kammari* of northern Karimnagar to collect ore from streams, which were often located at a distance in the immediate valleys of the scattered, small hills. These labourers also worked as bellows-men and performed other physical tasks under the supervision of expert *mudda kammari* smelters during the smelt. Since the forests where the preferred timber for making charcoal could be found were also scattered throughout the landscape, charcoal was purchased from the *Nyakas*, a charcoal-manufacturing tribal community in the region. Both in Adilabad and Karimnagar, the buffalo-skin bellows were supplied by the *Madiga* community.

There is no concrete evidence of control exerted by the local or regional authorities on iron-smelting. Apart from the late 19th century forest laws and fines imposed by the Nizam's government for failing to abide by them, no evidence survives in living memory about any form of taxation imposed on iron-smelting by the state. Detailed archival research is required to understand the nature of control and taxation, which was beyond the scope of the current research. However, there is some archaeological and ethnographic evidence of some sort of official control put in place by local or state authorities at smelting sites situated near Konasamudram, the hub of crucible steel production in Telangana. In the villages of Laxmapur and Rangaraopeta, the remains of enclosed iron-smelter settlements were identified, which might indicate that iron production in these two villages was closely controlled by some sort of authority, probably to ensure the continuous supply of

iron required to produce high carbon crucible steel at Konasamudram. However, the nature of this authority, and the amount of control it exerted over production, is unknown.

The distribution of iron-smelting sites and the current location of the *mudda kammari* communities in the study area produced an interesting pattern.

Corroborating the ethnographic data, the smelting sites in the Kawal Tiger Reserve of southern Adilabad are found adjacent to the numerous seasonal streams that criss-cross the forest. the mudda kammari community in this area, however, is concentrated in Dasturabad or its neighbouring villages. This nucleation is found to be a comparatively recent phenomenon: many mudda kammari families who previously were living scattered across the forest in Adilabad had migrated to the Dasturabad area as a survival strategy when iron-smelting rapidly declined in the early 20th century. In Karimnagar, since the sources of iron ore are more scattered in dispersed low hills, the mudda kammari communities are found living in the villages near these ore sources, close to evidence of smelting. Smelting in Karimnagar is not necessarily situated in the immediate vicinity of the seasonal streams; most smelting sites are found near the tanks on the outskirts of the villages, indicating that the mudda kammari community here was more integrated within village society than those living in the forests of Adilabad.

### **11.3 Decline and the social space of iron-working**

Academic research on traditional artisan communities of South India has primarily focussed on the single *Viswabrahmin/Viswakarma* caste identity. It is generally



envisaged that this caste identity is a long-standing phenomenon in South India and contains five distinct groups of specialized craft producers: blacksmiths, carpenters, bronze-smiths, sculptors and gold/silver-smiths. Each of these sub-groups are generally considered to be homogenous, and their internal differences have not been investigated in detail<sup>20</sup>. During the *Pioneering Metallurgy* survey in northern Telangana, the local *kammari* community had always presented themselves as a part of the overarching *Viswabrahmin* caste with no internal differences inside the community. The current research looked beyond this statement of apparent unity in the *kammari* community and unravelled the relationships between the *mudda kammari* iron-smelters and the *kammari* village blacksmiths in the study area.

What emerged is an image of complexity in the *kammari* social space. Underneath the layer of ideological homogeneity, the *Viswabrahmin kammari* identity, lay a complex history of reorganization of *kammari* social space forged out of economic and political changes and craft decline. It is now apparent that the *Viswabrahmin* caste identity, along with its system of myth and rituals, is a comparatively recent import into northern Telangana. When we move back in time to the early 20th century, with the help of the memory of my interlocutors and the available historical data, the concept of a homogenous *kammari* identity starts to fade and the *Viswabrahmin* identity evaporates. In place of a homogenous group of village

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<sup>20</sup> With the exception of Jan Boruwer's study of the *Viswakarma* blacksmiths in Karnataka. Here he discusses the differences within the Kannada blacksmith community in brief. BROUWER, J. 1995. *The Makers of the World: Caste, craft and mind of South Indian artisans*, Calcutta, Oxford University Press.

kammari, we see groups of different types of specialized iron-workers (e.g. smelters, village blacksmiths, swordsmiths, gunsmiths, scissors-forgers etc.) operating in northern Telangana in different types of markets. It is unclear whether all of these groups used *kammari* as a common identity term, or prefixed certain specialization-related words to identify what kind of blacksmiths they were (e.g. *mudda kammari*= [lit.] lump iron [making] blacksmiths). Even if the term *kammari* was used by the non-blacksmith community as an overarching identity term, it is certain that the current ritual and symbolic connotations of purity attached to the *kammari* identity – through abstinence from participation in the mainstream, cash-regulated market economy – did not exist at that time.

The process of homogenization of these diverse iron-working groups, first into a common *kammari* identity and more recently into a pan-South Indian *Viswabrahmin/Viswakarma* caste narrative, has been discussed in detail in this thesis. Based on ethnographic data and archival research, I have identified some major socio-political and economic shifts that led to this reorganization of caste identities. In Chapter 7, I described how the decline in pre-industrial iron-smelting in northern Telangana, caused by the import of mass-produced iron implements from England and the implementation of Forest Laws in the Hyderabad state, pushed the *mudda kammari* to adopt survival strategies in southern Adilabad and northern Karimnagar. When smelting ended in the first half of the 20th century, the *mudda kammari* were faced with a loss of identity and entered the rural prestation economy by taking up work as full-time blacksmiths, like the *kammari*.

Ethnographic data suggest that this was also the case for a large number of other

specialized groups of iron-workers who had lost the market for their products in the face of mass produced goods. All of these various groups, therefore, came under a single *kammari* identity and participated in the village prestation network. This also meant that they had to abide by the ritual restrictions about non-participation into a cash-market economy that was traditionally practiced by the *kammari*, and worked as a safety valve of the prestation system. While we do not know how a majority of these specialized communities felt about this readjustment of their identity and clientele, we know that the process was traumatic for the *mudda kammari*. The *kammari* community working in the rural prestation system considered the *mudda kammari* as ritually impure and very low in the rural hierarchy. The *mudda kammari* therefore found it difficult to be accepted within the *kammari* fold, and consciously attempted to hide their *mudda kammari* ancestry by denying any knowledge of their association with iron-smelting and constantly emphasizing their ritually pure *kammari* identity by talking about the *mudda kammari* community in the third person, while still largely maintaining marital alliances within the *mudda kammari* fold. This was why it was very difficult to identify members of the *mudda kammari* community in the initial days of the fieldwork. As soon as they warmed up to me and my field assistants, however, their genealogy became a roadmap to reaching more members of the *mudda kammari* community in the region, thanks to the practice of *menarikam* (first cousin marriage), which was the norm until the previous generation.

The next reorganization of identity started taking shape in the 1970s with the introduction of agricultural reforms through the “Green Revolution” in the state of

Andhra Pradesh. The impact of the “Green Revolution” was geographically lopsided; while it led to unprecedented agricultural prosperity in fertile coastal Andhra Pradesh, the farmers of semi-arid Telangana became impoverished. In the face of dwindling agricultural production, and the inability of the *kammari* to take cash payments from their farmer clients if they were to preserve their ritually pure status, the traditional prestation system ruptured. More and more farmers opted to get their agricultural implements forged by a group of itinerant blacksmiths, collectively known as *shisha kammari*, who work inside the cash economy and charge for their work on a piecemeal basis. This led to the decline of the traditional village *kammari* and aided the rise of the *shisha kammari* into prominence in the study area.

The *kammari* community therefore had to look for new avenues of empowerment, and new ways to express their identity. This has primarily been done by tapping into the ideological narrative of a unified, pan-South India *Viswabrahmin* caste identity. In Telangana, this is manifested through the person of Veera Brahmendra Swamy, an 18th century saint from Cuddappah. Tapping into this narrative has enabled the *kammari* community to make horizontal associations with the other similarly challenged specialized craft producers in Telangana, and in entire South India. The rupture of the traditional prestation system and shift towards a *Viswabrahmin* caste identity saw the replacement of the old *Mammayee* cult with the new cult of Veera Brahmendra Swamy in the study area.

## 11.4 Contributions and Future Directions

Before charting the pathway for future research on pre-industrial iron-smelting in northern Telangana, I would like to emphasize the need to be cautious about using ethnographic data to reconstruct past technologies and the social context in which they operated. Firstly, living memory, as I found in the course of my research in Telangana, only goes back to a maximum of 130 years. The data on the smelting technology and its social context presented in this thesis cannot be directly applied to reconstruct the technology and society far beyond that span of time. However, the ethnographic data presented in the current thesis can effectively provide a comparative analytical lens to study the changes or continuities in choices, styles, chaîne opératoire, and social contexts of technology from the archaeological record extending beyond the span of the living memory. Secondly, ethnographic data is partial. It primarily presents the opinions, perspectives, biases, agendas and cultural explanations of specific communities in which our interlocutors belong. This data, then, has to be contextualized by adding angles for a nuanced interpretation of the data collected in the field. This research achieves this by tapping into a large body of archaeological, archival, historical and landscape data to situate and analyse the ethnographic data from the study area. Finally, this research once again emphasizes the dynamic nature of caste in India. Caste cannot be taken as a static category and modern ethnographic realities cannot be applied to define the social formations in the past. The current research emphasizes that caste identities in India are always in a state of flux and that social groups are capable of the conscious manipulation, realignment and redefinition of caste-based identities to

keep up with changing political and economic circumstances and safeguard their own interests.

The current research is a broad overview of the social contexts of iron-smelting in northern Karimnagar and southern Adilabad in the last operational days of the industry. The data therefore presents a society and a technology in steady decline, and leaves certain gaps in understanding the nature of the technology in the past, beyond the living memory. It was not possible, for example, to understand the regional and temporal variations in the iron-smelting technology and its social context in the region through the ethnoarchaeological data. Further, due to the absence of ethnographic data on crucible steel production, no clear connection between the steel making and iron-smelting industries can be established. Future research in Telangana, therefore, must be more archaeological in nature: model iron smelting sites of different sizes and types have to be minutely surveyed through field-walking, and excavated to unravel the similarities and differences in the nature of archaeometallurgical evidence between them. The scientific analysis of samples collected during the Pioneering Metallurgy survey of 2010 is analysed in another PhD thesis, and the data from that study is expected to complement the ethnoarchaeological data presented here to help produce a better understanding of the iron-smelting technology of the area and help in charting future pathways for research (Girbal, forthcoming). From the perspective of South Asian archaeology, it is hoped that the research presented here will help in providing a viable ethnoarchaeological method to study the past technology of iron-working and other crafts in the Indian subcontinent.



**END OF VOLUME 1**

**APPENDICES, GLOSSARY, BIBLIOGRAPHY**

**IN VOLUME 2**



**Technology and Identity: an ethnoarchaeological study of the  
social context of traditional iron-working in northern Telangana,  
India**

Volume 2 of 2

Submitted by Tathagata Neogi to the University of Exeter

as a thesis for the degree of

Doctor of Philosophy in Archaeology

In January 2017

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# APPENDICES

## APPENDIX 1

### ETHNOGRAPHIC INTERACTIONS

This appendix records the narrative descriptions of ethnographic interactions either in form of semi-structured interviews or informal conversations with different interlocutors relevant for this research. Apart from participant observation, these interactions provide important emic insights about different aspects of specialized craft production in immediate cultural contexts, providing the base of analysis in my research.

For the sake of uniformity between semi-structured interviews and informal conversations, I have presented the data in the form of narrative description. Each interaction has been assigned a serial number based on chronology.

All these interactions followed University of Exeter approved ethical proposal (see below). Prior permission was taken from the interlocutors for using the interactional data in my thesis. However, since none of the interlocutors were prepared to sign the form on paper, oral permission was taken. Interactions were recorded in the form of field notes only. No audio or video recording (except where permission was given to video record forging of implements) was made because the interlocutors were not comfortable in speaking in front of either of these media. I have not paid any money to my interlocutors to retrieve the information, except in Dasturabad village, where money was demanded by the interlocutors after the interactions happened.

Pseudonyms are used (with surnames intact) for some interlocutors who did not permit me to use their names in print. The interactions recorded here are normally from my first meetings with these interlocutors. I have met them several times

afterwards, but the conversations then were more informal and not recorded here as formal interactions.

I start by providing a short list of interactions those are recorded in this appendix.

The comments mentioned in [ ] brackets are my own comments and interpretations.



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**Proposal and Consent Form for Research Projects**

**Title of Research Project:** Technology and Identity: an ethnoarchaeological study of the social context of traditional iron-working in northern Telangana, India

**Name and title of Researcher, and Details of Project:**

Tathagata Neogi is a PhD student at the Department of Archaeology of University of Exeter, U.K. He is funded by the Exeter/NIAS Intangible Histories Studentship to carry out the present research. The objective of his PhD research project is to study the society, culture and technology of traditional iron workers of central and south India to form a better understanding of archaeometallurgical record related to past iron working. The present phase of fieldwork will be from 28<sup>th</sup> of January till 4<sup>th</sup> of February with the Kota tribal artisans of Nilgiris in Tamil Nadu.

**Definition of invited participants:**

The Kota tribal group and other knowledgeable individual who can provide information about the tribe.

**Data or information to be collected, and the use that will be made of it:**

Different craft traditions with a special focus on blacksmith groups within the tribe. Various socio-cultural and religious practices will also be recorded in relation to these craft traditions and the craft communities. The information will be used for PhD thesis of the researcher and other research based publications.

**How will the information supplied by participants be stored?**

The collected data will be stored in form of field notes, digital photographs, digital video footages and digital voice recording device. The collected data will later be compiled into a user friendly digital archive.

**Contact for further questions:**

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**Consent:**

I voluntarily agree to participate, and agree to the use of my data for the purposes specified above. I can withdraw consent at any time by contacting the interviewer.

*Note:* Your contact details are kept separately from your interview data.

Printed name of participant: .....

Signature of participant: .....

Preferred contact - email or telephone: .....

Signature of researcher: .....

***One signed copy to be retained by the researcher, and one by the participant.***

Interaction no.	Interlocutor(s)	Place name	Date of interaction
1.	Kuchanapally Kondaiah	Dasturabad	7 April 2013
2.	Laxminarayana, Laxmikanta & Kiran Kumar	Siddipet	10 April 2013
3.	Keshava	Siddipet	10 April 2013
4.	Devarukonda Sayanna	Dhamannape ta	5 January 2014
5.	Devarukonda Bimana	Dhamannape ta	6 January 2014
6.	Polasa Rajaiah	Nerilla	7 January 2014
7.	Sudarshan Medavaram	Shekalla	8 January 2014
8.	Wadakapuram Rajanna	Shekalla	8 January 2014
9.	Nagesh Chauhan	Jagitial	8 January 2014
10.	Jammikunta Murali	Maddunur	9 January 2014
11.	Golapalli Lachhanna	Maddunur	9 January 2014
12.	Kottapalli Lakshmirajam	Sirukonda	9 January 2014
13.	A Kirtanachari	Pembarti	11 January 2014
14.	Brahmachari	Ibrahimpatna m	11 January 2014
15.	Yemnuri Bodanna Kuchanapalli Kondaiah	Dasturabad	23 January 2014

	Kuchanapalli Bakkaya Kuchanapalli Pottanna		
16.	Kuchanapalli Narayana	Birnandi	23 January 2014
17.	Ramadugu Shankaraya Rajeshwar Kallipaka Ramadu Kondaiah	Somarpet	23 January 2014
18.	Buchhanna	Bornapalli	24 January 2014
19.	Rudroju Bhimalingam Rudroju Rajanna	Malyala	24 January 2014
20.	Desaradi Kondiah Desaradi Narasaiah	Kalnadugu	25 January 2014
21.	Kanchari Buchharajam Kanchari Narendar	Guttapur	25 January 2014
22.	Kuchenapalli Laxmirajam Kuchenapalli Laxminarasaya	Godisiriya	25 January 2014
23.	Yemnuri Pedda Gangaiah Yemnuri Chinna Gangaiah Yemnuri Laxmi	Munniyala	25 January 2014
24.	Ulli Bomanna	Pedda Bellala	30 January 2014
25.	Medavaram Swamy Medavaram Ravi	Chitiyala	30 January 2014

26.	Kuchanapally Bakkanna	Rangapeta	30 January 2014
27.	Kuchanapally Kondaiah Kuchanapally Srinivas	Pembi	31 January 2014
28.	Kuchanapally Laxmipathy	Rangapeta	31 January 2014
29.	Khatroji Rajender	Nirmal	2 February 2014
30.	Vilasagar Rajaiah	Buggaram	1 February 2014
31.	Immadi Lachhanna	Habsipur/ Ayispur	3 February 2014
32.	Immadi Ananda	Habsipur/ Ayispur	3 February 2014
33.	Immadi Mutyalu	Habsipur/ Ayispur	3 February 2014
34.	Pedakanti Venkatrajam	Madutla	3 February 2014
35.	Malkapuram Laxmirajam	Godegondem	3 February 2014
36.	Nagesh Chauhan	Jagtial	15 April 2014
37.	Ravi Chauhan	Jagtial	15 April 2014
38.	Katta Sudarshan	Rebbanapally	21 April 2014
39.	Ramapally Venkataiah	Gudem	21 April 2014
40.	Rangu Mogili	Kaspet	21 April 2014
41.	Yemnuri Bodanna Kuchanapally Rajaram	Dasturabad	25 April 2014
42.	Pulluri Shankariah	Rangasagara	28 April 2014

43.	Polasa Rajaiah	Mangela	28 April 2014
44.	Ralabandi Satyaiah	Kalleda	21 May 2014
45.	Bawanapally Kammari Bhumaiah	Sangampally	21 May 2014
46.	Rajaram Swamy	Pembatla	21 May 2014
47.	Chakkalapally Gangaiah	Gangapur	21 May 2014
48.	Chintala Venkataswamy	Arnakonda	22 May 2014
49.	Thiparthi Sathyanarayana	Anantharam	23 May 2014
50.	Krishnamachari	Katkanapally	23 May 2014
51.	Members of local <i>Viswabrahmin Sangam</i>	Choppadandi	23 May 2014
52.	Kasarla Narasaiah	Kodimiyala	27 May 2014
53.	Panaganti Hanumanlu	Kodimiyala	27 May 2014
54.	Members of <i>Kammari Sangam</i>	Kodimiyala	28 May 2014
55.	Krishnamurthi	Pedda Kalvala	30 May 2014
56.	Nutti Bapu	Jangaon	2 June 2014
57.	Kalluri Ramesh Kalluri Sanjeev	Rechapally	3 June 2014
58.	Chattapally Bhumaiah	Battapally	3 June 2014
59.	Ramakanti Narasaiah	Kottapally	4 June 2014
60.	Chattapally Bhumaiah	Potharam	10 June 2014
61.	Desiradi Bhumaiah	Gopulapur	10 June 2014



62.	Mattela Rajeshwar	Ibrahimpatna m	12 June 2014
63.	Pawar Shankar Pawar Shanthosh	Dharmapuri	20 June 2014

**INTERACTION 1****NAME:** KUCHANAPALLI KONDAIAH**AGE:** 68**DESIGNATION:** Blacksmith [Mudda Kammari]**VILLAGE:** Dasturabad, Adilabad, Andhra Pradesh**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**INTERPRETER:** Dr. S. Jaikishan**DATE:** 7 April 2013

We met Kanchanapalli Kondaiah in his house which had a modest smithy in front under a small tree just outside the house boundary. He said that there are forty smith families in the village all of whom are Mudda Kammari or lump iron makers. He said that these families used to do smelting earlier but as the demand reduced, they have moved into blacksmithing.

I asked him about the manufacture of implements and he informed that no new implements are manufactured by them. They just do repairs such as sharpening and forge welding etc. This is due to a significant lack in demand. The remuneration is in kind and each smith family [or each smith?] work for ten families or forty ploughs. These relations are traditionally established through oral contracts and renewed every year [probably during the renewal rituals]. They also make the iron rims of the bullock-cart wheel [as recorded by Brouwer for Karntaka].

After every harvest, half quintal of grain is given as remuneration for every plough worked upon in the course of the year. The payment is fixed per plough worked and not per family. The blacksmiths work part time and they have their own agricultural lands. The collected grain as remuneration is stored in the house and if there is a surplus, it for exchange or sold in the market.

**INTERACTION 2****NAME:** LAXMINARAYANA, LAXMIKANTA (SON), KIRAN KUMAR (SON)**AGE:** 65, early 30s for sons**DESIGNATION:** Viswakarma Blacksmith**VILLAGE:** Siddipet, Medak, Telangana**INTERACTION TYPE:** Informal conversation**LANGUAGE:** English**DATE:** 10 April 2013

Sankaracharya, the chief priest of the local Mammayee temple and goldsmith of Siddipet town referred us to the house of Laxminarayana, who is from the blacksmith community and is the vice-chairman of Telangana Viswa Brahman Committee, which addresses the issues and rights of the Viswakarma community of Telangana. In his house, we spoke to him and two of his elder sons over tea and traditional sweets for the Mammayee festival.

He said that his family, along with twenty other blacksmith families of the village used to make and repair iron tools and deliver them to the nearby villages. However, none of the smithies of Siddipet town is functional at present, as Siddipet has developed into a thriving local commercial centre from being a modest village in the last three decades.

Hence the economy is not dependent on agriculture anymore and the domestic implements could be obtained from the market. Only the goldsmiths and the silversmiths of the town could sustain themselves through their craft as their skills are still in demand.

This is why his family ceased blacksmithing in 1996-98 and the present smithy, which was

in one of the corners of the present extended concrete courtyard of the house, has been abandoned permanently. However, the space is retained in memory and is worshipped on regular basis.

I asked him about the source of iron and he said that the blacksmiths used to bring scrap irons from Hyderabad, which is 100 km away, since it was more convenient for them to travel than the farmers. After they had quit iron-working permanently, his eldest son received training in physiotherapy and the second son recently completed MBA from Hyderabad. Both of them are based in Hyderabad now and were visiting the house for the renewal ritual. The festival in Siddipet is a three day affair and is run by the local viswakarma community. However, everyone is welcome in the temple and is allowed to participate in the festival. The actual cult seems to be worshipped at individual houses and in the house of Laxminarayana, there is a shrine where some iron implements are worshipped. Though they have ceased blacksmithing, the tools used are stored and are brought out during the festival for worshipping.

I asked Laxminarayana about the artefacts he used to manufacture as a blacksmith and number of farmer families he served. He said that primary manufactures were agricultural implements such as knives, sickles, ploughshares, crowbars and axes. Depending on the intensity of the usage, these needed to be sharpened once a month and approximately lasted of two or three years, after which a new implement was required. However, the farmers regularly needed iron shoes for the bullocks and the cows, and since these shoes only lasted for a month, there was a steady demand for it from the village.

His father had served six farmer families, but during Laxminarayana's time, the number of client families increased to 50 [probably due to the reducing number of working smiths in the village]. All of these families were bound by a traditional oral contract where

Laxminarayana had to provide them with whatever number of implements required per year, including repairs, against the promise of 50 kg of grain after two harvest seasons in total. After using the grains for subsistence, the surplus grain was sold in the market for cash, which can subsequently be used for purchasing other essentials.

I asked him how the remuneration system in kind worked with the non-agricultural clientele. He said that those who were not farmers, including those from the Viswakarma community, were expected to pay in kind. All manufactures were made only a prior order was placed and nothing was made in excess for selling in the market. He added that the income from the farmers decreased during droughts.

I asked them what the organization of production was, and the eldest son told me that blacksmithing is normally a three-person work. The main blacksmith is helped by small children who operated the bellows and the wife of the smith who helped with the sledgehammer. This is the first reference of the presence of woman in blacksmithing that I got from Telangana. In all other previous occasions I was informed that women were not a part of blacksmithing and that they are prohibited to enter the smithy or to perform the cult of the smiths. I asked this question to them and they said that normally women are excluded but in a family where the smiths do not have any sons to help him with, his wife will normally act as the helper.

I asked the eldest son about how he had learnt blacksmithing and from which age. He said that he started to learn from 5<sup>th</sup> standard [9 years of age]. It took three months before he was allowed to forge the first iron implement, the nails. Now he can manufacture 150 nails in an hour. The process started with operating the bellow and followed by observation and trials until it was gradually perfected with practice.



**INTERACTION 3****NAME:** KESHAVA**AGE:** 44**DESIGNATION:** *Shisha Kammari***VILLAGE:** Siddipet, Medak, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**INTERPRETER:** Ramesh**DATE:** 10 April 2013

While walking towards the bus stop at Siddipet we saw Keshava's shack cum workshop on the roadside. This was interesting to us because of the temporary nature of the workshop and the residence; it did not resemble any of the traditional smiths we have visited so far. We asked Keshava if we can have a chat with him regarding himself and his work and he readily agreed.

He said that he is working as a blacksmith on the same spot last twenty years and that his father is also a blacksmith at Siricilla. However, he belongs to a different caste than the Viswakarma blacksmiths. His caste is Are Kammari. I asked him what it means, but he failed to explain. He just said that his is a lower caste than the Viswakarma smiths.

Kesava said that he manufactures and repairs sickles, knives, hammers and ploughs and he works every day of the week. The scrap iron is bought by him from local market at Siddipet and he produces both for farmers and non-agricultural community. However he

does not have a clientele tied with traditional oral contract and the payment comes in cash rather than in kind. He said that he takes one hour to forge one sickle and his production is not dependent on the orders, he manufactures for the market as well. Cost of each sickle is Rs. 80- 100, depending on the size. He also manufactures the iron rim of cart wheel.

His family consists of his wife and four children. We saw his wife helping him in the smithy with the sledgehammer. He said that there is no taboo regarding the presence of women in his caste. When asked if women can be blacksmiths, he said that they can only use the hammer. He hoped his children will become blacksmiths like him when they grow up.

**INTERACTION 4****NAME:** DEVARUKONDA SAYANNA**AGE:** 75**DESIGNATION:** Viswakarma Blacksmith**VILLAGE:** Dhamannapeta**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**INTERPRETER:** Dr. S. Jaikishan**DATE:** 5 January 2014

Sayanna hails from a family of blacksmiths of Rajaram village. Rajaram is an adjacent village to Dhammannapeta. He said that before he had come and settled in Dhammannapeta, there was no blacksmith family in the village and his family in Rajaram used to serve the requirements of the farmers of Rajaram, Dhammannapeta and Nakkalapeta together. Although they lived permanently at Rajaram, the family used to own a land and a smithy at Dhammannapeta and Nakkalapeta as well and forged items for the farmers of these villages as and when required by staying there temporarily. However, about 40 years earlier the farmer families from Dhammannapeta had requested him to settle in the village permanently and from what he stated now it seemed as if they had given them this land where the present smithy and the house stands [It is not clear whether the plot of land they owned earlier was in the adjacent area or that this was the same plot of land]. Further questions about this only confused him more and did not serve

the purpose. Another of his brothers was asked to settle at Nakkalapeta, while the remaining brother stayed on at Rajaram. So in his generation the family dispersed among three villages that his family had traditionally served from Rajaram.

I asked him if he has any additional source of income other than blacksmithing as blacksmithing is not as lucrative as it used to be in the past. He agreed that it is not as profitable; however, he does not have any other source of income. Three of his four sons have taken to carpentry on a permanent basis; the youngest son carries the family tradition of blacksmithing forward and works in the same smithy as his. Sayanna said that he and his son work every day for a few hours, depending on the number of customers. There used to be more work earlier, however, the introduction of tractors have taken away most of his clients. I asked him what the busiest period of work was. He said that the months between June and December were and still are the busiest when they have to forge new agricultural implements and do frequent repairs for the sowing, weeding and harvest seasons. Post December is a dry period for smithing as the farmers wait for their second harvest and the blacksmiths had already made the tools the farmers would require. Therefore during this period there is less work, mainly consisting of rudimentary repairs. This is also the time when he concentrates on making more domestic implements and the implements those are needed for house construction and repair, such as door hinges. Since this is the period less agricultural activity, the farmers also tend to use most of their time repairing their houses. [Jai added own that now they must be working for two hours every morning only due to lack of demand.]

I asked Sayanna how many ploughshares he is required to make every year. He said that he has to make fifty new ploughshares on average in between June and December every year. The clients are charged according to the number of ploughshares he makes rather

than the number of farmer families he works for. The payment is preferred in kind, and Sayanna said that he charges  $\frac{1}{2}$  quintal of rice per share or if paid in cash the amount is fixed at Rs. 500-600. Farmers only need to pay for the ploughshares. Other agricultural implements and subsequent repairs has to be done for free. It did not seem to me that this could work well in case of cash transactions as the system then would not be financially viable, but I could not get a proper reply to that question and it was most likely lost in translation. The clientele and the charges are fixed based on generations old customs and the payment is made once a year, normally after the first harvest in November-December. I asked Sayanna how much iron one would require to make a standard size ploughshare. He said that normally  $1\frac{1}{2}$  kg to 2 kg of iron is required for a standard ploughshare. The share needs to be repaired and attached with an additional piece of iron tip after a year. The average life span of a ploughshare with subsequent repairs could be 5-6 years. Other agricultural implements that he forges are—axe, sickle, pickaxe, weeding implements etc. Domestic implements such as knives, nails, hinges etc. are also manufactured and these are charged only in cash. The clients are required to bring their scrap iron from the market. Before buying iron, they would consult the smith about how much and what quality of iron would be required for the item ordered and then purchase accordingly from the market. The clients also need to bring their own charcoal, which is normally collected from cooking hearths and not bought from the market. If the customer brings excess charcoal, the blacksmith can use the extra charcoal for his own purpose.

At his point I asked him if he would forge a ploughshare for me tomorrow. He readily agreed but told me that he will have to get the scrap iron from somewhere as he do not have any spare with him. I asked him how much the charge would be for a ploughshare,

and he said it would around Rs. 250. He said that he was not used to produce shares for a non-agricultural and non-customary client so he would find it a little weird to forge the share for me and take money from me for it. I agreed to pay him the amount and he asked me to visit him the next morning by 9:00 am. He also allowed me to both photo and video record the forging. While we were speaking to Sayanna, the women of the house were also present in the courtyard and actively participated in the conversation. This was a stark difference from 2010 and it was probably because they felt more comfortable with only two strangers talking to them rather than a large group, which was the case in 2010.



**INTERACTION 5****NAME:** DEVARUKONDA BIMANA**AGE:** 35**DESIGNATION:** Viswakarma Blacksmith**VILLAGE:** Dhamannapeta**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**INTERPRETER:** Dr. G. Prabhakar**DATE:** 6 January 2014

Bimana is the youngest son of Sayanna. He had taken up blacksmithing while his three elder brothers have been doing carpentry in the same village. He said that this was because of a comparatively lesser demand for blacksmithing due to the use of tractors in cultivation. Bimana said that he works every day from 8 am to 6 pm and when he has enough clients, especially during the summer and pre-monsoon season, he has to work without a break. He manufactures *kodal* [sickle], *godalu* [Axe], *karru/khurupi/khonka* [ploughshare]), *kammulu* [iron ring for cart wheel], *janbu* [weeding implement] and toddy knife etc. Primary demand for his services is between June to December/January, during which time he has to produce sowing, weeding and harvesting implements. Like his father the previous day, he also said that he manufactures approximately 50 ploughshares per year. Earlier he used to manufacture 350 shares but the demands of ploughshares have decreased considerably at present. He said that one ploughshare can be used to cultivate

5 acres of land without significant repairs for a year. After one year, forge-welding a new piece of metal tip to the old share might be required. In this way, a ploughshare would normally last for 3 more years.

Earlier all the farmer families in the village were his clients, however, at present the number of regular client families plummeted to 60. The mode of remuneration is preferably in kind [ $\frac{1}{2}$  quintal paddy per plough], but in some rare cases Rs. 600 per plough manufactured is also accepted. I asked him how much iron is required to manufacture one ploughshare. He said that 2 kg iron would be needed. For manufacturing a sickle,  $\frac{1}{4}$  th of a kg of iron is required normally.

At this point Sayanna asked Bimana to help him forge the ploughshare for me. I had already taken permission to take photographs and do a video recording if possible and use the information in my research. During the entire period of forging, there was a good number of curious crowd present near the smithy. They mostly wondered why it was important for me to record something as mundane as manufacturing a ploughshare. While Sayanna sat in the blacksmith's seat, Bimana followed his instructions about lighting the furnace and helped him with hammering the share with the large sledgehammer during the forging process. One of the farmers present in the crowd volunteered to operate the bellow.

#### **DESCRIPTION:**

9:42 am: Fresh charcoal added to the hearth and it was set alight as the bellowman started rotating the hand bellow at a steady but slow pace.

9:46 am: the fire having uniformly lit, the iron bar is placed in the furnace and covered with more charcoal.

9:47 am: Sayanna and Bimana starts forging the base of the share which is attached to the wooden plough with two iron hooks. The narrow base was forged without cutting the piece of iron but merely hitting the base area repeatedly with hammer on the anvil.

9:48 am: The base area is further reheated and narrowed to desirable size by continuous and synchronous hammering by Sayanna and Bimana.

9:49-9:54 am: Pointed but blunt front end of the share is forged by heating the bar and hammering it alternatively, adding more charcoal when required and sprinkling water intermittently to maintain the uniformity of heat and prevent the iron from overheating.

9:54-9:57 am: Final finishing touches to the share. The forging being complete, it was quenched by sprinkling water on it from the small quenching pot near the anvil.

9:57-10:00 am: Small iron hooks to attach the share with the wooden plough is made from small pieces of scrap iron scattered in the smithy.

Sayanna left the smithy immediately after the forging was complete. He was visibly exhausted because of his age. I continued my conversation with Bimana. I asked Bimana about his family. He confirmed that his ancestral village is Rajaram, and they have moved to Dhammannapeta on request by the local farming community four decades back.

However, contrary to what Sayanna said yesterday, Bimana told me that his father's brothers are not settled in Nakkalapeta and Rajaram. They live in Malapur, Mandapally and Tummikurchilapally villages of Adilabad district. There are members of his extended family in Rajaram, all of them are blacksmiths. Some of his relatives are also settled in Donnur village.

I asked him about the role of women in blacksmithing and specifically if they are allowed to play any part in forging. He said that women are never allowed in the smithy and cannot be trained as blacksmiths. They can only help with operating the bellows in very exceptional circumstances where there is a lack of help for the blacksmith in the smithy. However, he said that there is no gender distinction among the *Shisha Kammaris*, who are town-based blacksmiths and are a lower caste than the rural Viswakarma blacksmiths like himself. He also said that the Viswakarma blacksmiths like him only produces for a fixed clientele of farmers in a village and do not produce surplus items for the market. The *Shisha Kammaris* on the other hand manufactures items for the market only and their production is not strictly regulated according to order unlike the rural blacksmiths[ it was evident from his body language that he considers *Shisha Kammaris* as impure and was not really respectful while speaking about them]

I asked him what domestic iron implements he makes. He showed me a sack full of door hinges that he had produced according to order. He said that one door needs four such hinges and each hinge costs Rs. 35. I asked him if the hinges are made only when the clients ask for them. Bimana answered affirmatively. He also makes knives and nails when required by any customer. Based on my previous experience, it seemed that one of the major manufactures of the blacksmiths constitute of shoes for the animals used for cultivation. I asked Bimana about that since I had not heard either Sayanna or him speak about it as a part of their manufacturing repertoire, and in 2010 none of the interviews mentioned this as one of the manufactures. Bimana said that the cows and bullocks here do not use shoes as the soil is soft and shoes are not required. Hence there is no need for manufacturing these items. I asked him if his family worships any particular deity identified with blacksmithing. He said that they all worship *Brahmangaru* or

*Vishwabrahman*, like all the other communities of the caste. The main festival is during *Ugadi* or the New Year in Telugu calendar.

**INTERACTION 6****NAME:** POLASA RAJAIAH**AGE:** 40**DESIGNATION:** Viswakarma Blacksmith**VILLAGE:** Nerilla, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**INTERPRETER:** Anil and Sravan**DATE:** 7 January 2014

We met Rajaiah in the courtyard of his house. I interviewed him in 2010 as a part of the UKERI project. He was then recorded as an “Itinerant smith” because we met him when he was repairing knives of his toddy-tapper clients in front of the *Ellama* [goddess of the toddy-tappers] Temple in the outskirts of Nerilla. This interview was necessary to establish if he really was an itinerant smith and understand the nature of his itinerancy.

Rajaiah said that he is working as a blacksmith from 18 years of age and it took him three years to learn smithing. I asked him about how the apprenticeship worked and what were the different stages involved. He told me that he had learnt mainly by observing his father and uncle work in the smithy and helping them while working. The present smithy in which he works is 40 years old, and was set up by his uncle. The anvil however, was 80 years old and is made out of smelted iron.



I asked him how many blacksmith families were there in the village. He said that there are 5 smith families, all of them live on the same street [*Chowrasta*] and are neighbours of each other. Rajaiah said that he mainly manufactures agricultural implements and the busiest time for this is in between May and August and again between December and February as these correspond with two sowing and harvest seasons. Rest of the year, his income comes from repairing and forging toddy tapper's knives and other iron implements of a toddy tapper's repertoire. For this reason he would have to work occasionally in front of the Ellama Temple from the month of February onwards as that is where the toddy tappers congregate. However, this is not a routine and he only visits the temple premises when his clients want him to. Otherwise he works from the smithy of his residence.

Toddy tappers are the most important clients for him as there are 180 toddy tapper [*Gauda* community] families in the village who are in constant demand of a smith to repair and forge new implements for them. There are only two blacksmiths out of the five who specialize in making toddy tapper's tools and therefore their services are in high and regular demand. It takes only fifteen days for toddy tapping knife to lose sharpness and hence need frequent re-sharpening. New knives are also required ever so often. Rajaiah said that the toddy tappers bring 300-400 gm iron files from markets in Jagital or Dharmapuri, . They also bring charcoal required for the forging from their cooking hearth. The cost of one file of iron is Rs. 50 and Rajaiah charges Rs. 50 from the toddy tappers to forge one knife. Unlike the farmers, all the transactions with the toddy tappers happen in cash because they need a blacksmith's service frequently and almost regularly. Also, unlike the farmer clients, the toddy tapper clientele is not fixed and no customary oral contract exists. The toddy tappers can seek the services of any of the two blacksmiths they like and it normally depends on personal rapports and number of customers waiting

to be served during a working day[ I think a transaction in kind would not be helpful in case of toddy tapper clients as the only thing they can pay in exchange of service would be toddy, which is not as useful as food crops, which, if obtained in excess, could be resold in the market against a good amount of cash] I asked him about the maximum life span of a toddy tapper's knife with repairs. He said that these knives normally last up to 3 years. However, since toddy tapping is more regular and intense than cultivation, the implements need replacements earlier than that. This might also indicate the presence of blacksmiths specializing in manufacturing toddy tapping implements within that village. Then I shifted my discussion to his farmer clients. He said that Nerilla has a population of 8000 and there are 500 farmer families in total in the village. Among them, 50 families are his customary clients and he both forges new implements and repairs old ones for them. There were more families earlier, but most of them have started using tractors at present. He produces 50 ploughs per year, each from 1 ½ kg of iron files, and in return he receives 1 quintal of rice annually from these 50 families. The payment is decided on number of ploughs he manufactures and not on the total number agricultural implements made and repaired. The farmers are responsible for providing raw materials and charcoal and Rajaiah, in return, must produce as many implements required by each of his client families.

At this juncture, an old goldsmith, who is a neighbour of Rajaiah had entered the conversation. He said that Rajaiah's uncle was a very famous and skilful smith. Although Rajaiah also does good work, he has not yet reached the level of his uncle. Rajaiah seemed to take pride on the fact of being compared with his uncle.

At this point, Rajaiah showed me two toddy tapping knives that he had manufactured earlier that day. I asked him if I could purchase one of them. He said that he had forged

them for a client who had asked for them and he does not have any extra knives [manufacture being strictly regulated by order]. However, if I want him to make one, he would be very happy to do that. I thanked him for the offer and asked permission to record the manufacturing process on video and he agreed. Next he started looking for a suitable file of iron with which the knife could be forged. Since he did not have any spare piece of iron [iron bars are provided by the clients], he decided to forge one just for the sake of recording from a round and weak iron file. He said that he has enough charcoal left over from the day's forgings to make one knife for me. Rajaiah started to operate the bellow himself, and I asked if that is what he normally does. He said that normally it would be the client whose implement is being forged or repaired. I asked if I can operate the bellow. He was clearly very hesitant and at this point Anil had kindly offered to do that himself. Before the forging process started the friendly man who was interpreting for me bade goodbye and asked if we would like to have some toddy. We said we would not as we will be having lunch soon.

### **DESCRIPTION:**

11:42 am: Lights the furnace and adds fresh charcoal left over from earlier forging. Places the iron rod in the hearth and covers it with charcoal as Anil continues to bellow at a constant gentle pace.

11:46 am: Hammers one end of the bar and makes it flat. This would be the curved sharp edge of the knife.

11:46-11:53 am: Alternates heating and forging the curved end of the knife and makes the bar flatter and thinner to help achieve the sharpness.

11:53-11:59 am: Makes the hook like curvature at the sharp end of the knife through alternative heating and forging at the edge of the anvil.

12:00 pm: Forging is complete with some finishing touches. The knife is then sprinkled with water from the quenching trough and left to cool. I paid Rajaiah Rs, 100 for the knife to compensate for the iron that he provided and the labour charges. He said that I must come back early in the morning if I want to see actual knives being forged. I thanked him for the interview and for forging the knife.

**INTERACTION 7****NAME:** SUDARSHAN MEDAVARAM**AGE:** 60**DESIGNATION:** Viswakarma Blacksmith**VILLAGE:** Shekalla, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**INTERPRETER:** Rajesh and Anil**DATE:** 08 January 2014

We interviewed Sudarshan in 2010 during our brief survey visit in Shekalla for the UKIERI Pioneering Metallurgy survey. However, that interview was not substantial and an in depth, unstructured interaction was required. I spoke to him this time at his courtyard as he was putting a large heap of paddy husk in jute sacks.

Sudarshan said that he has been working as a blacksmith from 18 years of age. He used to be a farmer before that, looking after ancestral family plot of  $\frac{1}{2}$  acres of land. His father was also a blacksmith and the smithy [in his courtyard] was established by him.

Sudarshan said that although earlier their services were in constant demand, introduction of tractors in agriculture saw a sharp decline in the number of client farmer families he used to serve. As an example, he said that his uncle, who was a superb blacksmith, provided his services for 70 farmer families. Sudarshan now serves ten permanent client

families only. Others have either adopted superior technology for cultivation, or migrated to the cities.

I asked him whether he works every day in his smithy. He said that since there is not much demand, he works on a very part-time basis, when a client of his would seek his service. However, he does not manufacture new iron implements. His father used to do it, but now the *Shisha Kammaris* [itinerant smiths] have taken over the production of new implements such as ploughshares and other tools needed for cultivation. I asked him if other blacksmiths in the village only does occasional repairs of iron implements only. He answered affirmatively.

The main season when he has more work is in May and June every year. This is pre-monsoon season which corresponds with sowing of new crops. I asked him about the number of farmer families in the village. He said that there are 100 families at present, and only 10-15 families from his original clientele seek his services on an irregular basis. Each family who uses his service pays him 56 *qunchas* of paddy per year. The payment is normally made after the first harvest in December and January. In return Sudarshan has to repair as many number of tools as his clients want. He said that there are four blacksmith families in the village including his. Among the rest, two are related to him-- one his nephew Nagaraju [who we interviewed in 2010 survey] and the other, his grandson Rajamauli. They live on the same plot of land and share a single courtyard. But their smithies are separate and they have different groups of farmer families as their clients. He has two sons, who are working as wage labourers in Dubai.

I asked him to tell me more about the *Shisha Kammaris*. Last year [2013] I met an itinerant blacksmith in Siddipet [Interaction 3], and decided to pursue itinerancy in



blacksmithing in this season. However, I had not got any information or mention about them so until now during this season's work.

Sudarshan said that *Shisha Kammaris* are lower "caste" blacksmiths who are distinct from Viswakarma caste. They are itinerant in nature and comes to the village before the monsoon during the sowing season in May-June every year. They bring newly manufactured agricultural implements and the farmers purchase those from them. This transaction happens in cash. The *Shisha Kammaris* do not have a fixed clientele in any of the villages they visit. And not the same group of *Shisha Kammaris* visit every year. Some of these groups pitch tents in the village for a few days (2-3 times a year) in course of their travel. They set up temporary forging hearths using their portable tools and forges agricultural implements according to the order from the farmer families. The price of an agricultural implement is determined according to the weight of scrap iron needed to manufacture it. Sudarshan said that normally they charge Rs. 60 per kilogram of scrap iron. In this case the blacksmiths themselves bring the raw materials needed for manufacture-- the farmers do not have to provide them. I asked if he knows about any *Shisha Kamhari* colony nearby. He said that they could be found working in temporary tents and shacks in Jagitial [nearby town] and other towns of the region. They do not have any permanent habitation as they keep on moving from place to place.

I asked Sudarshan if he knows anything about *Mudda Kamhari* [iron-smelters] community. He said that he had heard about their presence in the region from his grandfather and uncle, they do not exist anymore. He also did not exactly know if they were a different community than the Viswakarma blacksmiths like himself.

**INTERACTION 8****NAME:** WADAKAPURAM RAJANNA**AGE:** 55**DESIGNATION:** Viswakarma Blacksmith and Carpenter**VILLAGE:** Shekalla, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**INTERPRETER:** Rajesh and Anil**DATE:** 08 January 2014

Like Sudarshan, Rajanna was interviewed in 2010 as well. I decided to talk to him again as he is originally from a family of carpenters and have only taken up blacksmithing at an advanced age.

Rajanna was interviewed in the courtyard of his house, which stood opposite to the *Hanuman* [the Monkey God worshipped by the *Viswakarma* of South India] temple of the village, but spatially separated from other three blacksmith residences. He said he was trained as a carpenter, the ancestral craft of his family. He only started blacksmithing along with his primary focus on carpentry when he was 30 years of age. It was then that he had established the smithy which could be found on the north-east corner of the courtyard of his house, well separated from the carpentry workshop [which was obviously more active in production]. Rajanna took up blacksmithing to supplement his income from carpentry, and works on a very part time basis. He said that he has learnt blacksmithing

by himself and is not skilled in manufacturing new implements—which are done by the *Shisha Kammari*. He provides his services in form of occasional repairs of agricultural tools. He has a fixed clientele of 20 families of farmers, most of whom are also clients for his family carpentry workshop which manufactures bullock cart wheels and furniture. In return each family pays him 56 *Qunchas* of paddy every year. The payment for carpentry is also in kind, but is separate from the one for blacksmithing.

**INTERACTION 9****NAME:** NAGESH CHAUHAN**AGE:** 25**DESIGNATION:** Shisha Kammari**VILLAGE:** Jagitial, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Hindi**DATE:** 08 January 2014

Following the lead about the *Shisha Kammaris* obtained from Sudarshan in Shekalla [Interaction 7], I identified the shack where Nagesh and his four brothers have their workshop in Jagitial town.

Nagesh is a 25 year old blacksmith belonging to the Lambada community [Scheduled tribe in Andhra Pradesh]. He is married and has two kids. He said that everyone in his extended family has been blacksmiths for generations and have migrated from their ancestral village of Tarakpur in Uttoor mandal of Adilabad district in Telangana two decades back to seek better fortune. After settling in Jagitial, the family had established their first workshop in Angadi Bazar [a few kilometres away from the present location] in Jagitial town. Nagesh said that there are seven families of *Sisha Kammaris* in the town, two of which belong to his two brothers, along with the present one which is shared by Nagesh and his youngest brother and their families. I was surprised by his skill in spoken Hindi and I asked how he knew the language. To this he said that he had picked it up

while moving around as blacksmith. Apart from native Lambadi and Hindi, he speaks Gujarati, Marathi and Telugu, all of which he had picked up like Hindi. He said that it is common among the *Shisha Kammaris* to know many languages.

Then we spoke about his work. He said that himself, his younger brother, his nephew [who was an apprentice blacksmith in the workshop], and the women in the family work together in the workshop from 7 am- 8 pm, without break. They work full time, every day of the week and their primary manufactures are axe blades, knives, iron gates, window frames and agricultural and domestic implements. [Unlike the] Viswakarma smiths, they produce for the market and do not have a fixed clientele. The customers visit their workshop to purchase the implements they need, or get small time repairs done. These transactions occur through monetary medium only and Nagesh said that they would not accept payment in crops. Apart from catering to the urban customers, his and other *Sisha Kamhari* workshops of the town serve the villages as well. There is a village market on every day of the week in one of these nearby villages of Jagital—Metpally, Dharmapuri, Kodimiyala, Dharmaram, Luxettipet, Shekalla. Manufactured goods such as axe-blades, agricultural tools and domestic implements such as kitchen knives made in the urban workshop, are transported to these village markets. When these are sold to the urban customers, he charges Rs. 250 per axe-blade, however, for the village markets; each axe-blade is sold for Rs. 150. On an average his workshop produces 30-40 axe-blades each day and normally it takes one hour to produce 4 blades.

I asked him whether he travels through the villages to manufacture new agricultural implements before the sowing season in the pre-monsoon months. He said that June-August is a busy period for this kind of work. He has travels along with his family carrying his portable smithing tools, through the villages and makes agricultural implements for the

farmers. Unlike the Viswakarma smiths, farmers do not need to provide them with raw materials such as scrap iron and charcoal. They carry those with them when they travel and the farmers need to pay them in cash for the implements they get made.

I asked him about apprenticeship as I saw his nephew being meticulously trained to hammer properly. Nagesh said that he was apprenticed by his father and elder brothers since he was ten years of age and it took him a year before he was allowed to forge unsupervised. Normally an apprenticeship would start from training to hammer properly. Depending on the willingness and skill of the apprentice, blacksmithing could be picked up in between one and three years and after that one is allowed to start his own workshop or manufacture unsupervised in a shared family workshop. He joked that his nephew will probably take 3 years to learn. The women can also become blacksmiths among the *Shisha Kammaris*. If they want to smith, then they will be trained in the same way. But normally women help their fathers, brothers and husbands at the workshop by being actively involved in forging process [mainly hammering].

I asked Nagesh if he would let me travel to a few villages with them in the monsoon of 2014. He has readily agreed to the proposal.



**INTERACTION 10****NAME:** JAMMIKUNTA MURALI**AGE:** 40**DESIGNATION:** Carpenter+Blacksmith**VILLAGE:** Maddunur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 09 January 2014

Murali came out to his courtyard, in a small corner of which his smithy was. There were wooden planks and semi-finished wooden artefacts lying nearby, and I asked Murali if he does carpentry as well. He said that he is from a family of carpenters and had only been smithing for last 16 years. There are a total of four blacksmith families in the village. Other group of the Viswakarma caste in the village are the goldsmiths. All of these four blacksmiths are carpenters as well and carpentry is their primary and customary occupation. They have all learnt blacksmithing because there are no Viswakarma blacksmiths in the village.

His uncle used to be a blacksmith and had 70 client farmer families for whom he manufactured implements. However, due to mechanization of agriculture and migration of farmer families to the urban areas and the Gulf countries, the number of client families and hence the demand for his services has sharply declined. He presently serves 10

families of farmers. However, he only does repair works for them and new implements are manufactured by the *Shisha Kammaris* prior to the monsoon.

I asked him if his clients in carpentry are same as those of blacksmithing. He said that produces for the same set of clients as blacksmith and carpenter.

As remuneration for his services, he receives 70 kgs of paddy per family of farmers. The payment is made once every year, during the harvest in December-January. The surplus grain from this is sold in the village market to obtain cash.

I asked him how old the present smithy was. He said that his uncle used to have his smithy on the same plot of land. However, he had established the present smithy after reconstructing the house. He said that it he had learnt blacksmithing from his uncle.

I asked him about the other blacksmith cum carpenter families in the village. He commented that even though they stay nearby, none of them are related through blood relations. He again regretted that although there are 500 families of farmers in the village, most of them do not need the blacksmiths due to mechanization of agriculture.

I asked him if he worked every day at his smithy. He said that he only works when a client comes for repairing some implement. Blacksmithing is not in demand and hence it is not profitable. Carpentry is more profitable than blacksmithing as there are other clients apart from the farmers.

He said that the same family of *Sisha Kammaris* visit the village every year to forge new agricultural implements. They put up a temporary shelter and stay in the village for a fortnight.

**INTERACTION 11****NAME:** GOLAPALLI LACHHANNA**AGE:** 60**DESIGNATION:** Carpenter+Blacksmith**VILLAGE:** Maddunur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 09 January 2014

Lachhanna is from a family of Viswakarma carpenters. However he is working as blacksmith for last 25 years. He has established the smithy himself and had learnt blacksmithing by himself. The house however, is around 130 years old, and the mud perimeter wall with slag inclusions, was constructed then. It originally belonged to a local brewer and he had purchased it from him a couple of years back. Before moving to this house, he lived in a different house in the same area and had his carpentry and smithy there. He had moved in this house because it gave him more space for carpentry and blacksmith workshop in the front, dilapidated courtyard of the house.

Like Murali, Lachhanna also only does repair work for his clients and did not learn to forge new implements. He said that he used to serve 25 families of farmers from the village, however, due to mechanization and migration of the present generation of farmers to urban areas, number of permanent client families have plummeted to 10. He said that he

accepts money for his service to these families; however he prefers payment in kind.

Each client family pays him 70 kg of rice per year.

Lachhanna's son also learnt blacksmithing from him. However, he does not work in the smithy. He has set up his own welding shop in the village. Lachhanna does not work every day in his smithy. He primarily focuses on carpentry. His smithy is only operational when there is a client. The clients need to bring their own charcoal and any scrap metal that they want to be forge-welded to repair their implements. Normally the customers operate the bellow as he repairs. He had invested in the second cycle wheel because at times he has to operate the bellow by himself and it is easier to have the wheel handle at his reach. Lachhanna said that he repairs implements for the non-customary clients; however he only accepts cash payment from them.

I asked him if he knew where the slag has been collected near the village. He said that he has no knowledge of it. He does not know who the *Mudda Kammaris* are either and have never heard about them.

I asked his permission to photograph him and the smithy. Earlier he had not permitted me to record the interview on a voice recorder, but he seemed okay with taking photographs and sketching his smithy. By the time I had brought my camera out, he was sitting at his smithy with his hammer in his work gesture, posing for the photo.

**INTERACTION 12****NAME:** KOTTAPALLI LAKSHMIRAJAM**AGE:** 85**DESIGNATION:** Carpenter+Blacksmith**VILLAGE:** Sirukonda, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 09 January 2014

Lakshmirajam is from a Viswakarma *Kammari* family. He does carpentry as well. He said that his predecessors had also pursued both blacksmithing and carpentry. However, I failed to understand if these two works were always done by the same person or different members of the same family. The question was lost in translation and made no sense to Lakshmirajam and he emphasized that his predecessors did both work.

Lakshmirajam said that he has been smithing from 16 years of age and had learnt blacksmithing from his father. Rajesh asked him how far he had studied and Lakshmirajam replied that he had studied till sixth class. I asked him about the ownership of the twin smithy outside adjacent to the road. He said that those are ancestral smithies and are owned by his brother and himself. The smithies were there for a long time. His brother resides in the house opposite to the smithies. I asked him if they were the only blacksmiths in the village. He answered affirmatively.

In 2010 Lakshmirajam told us that he forged new implements for the farmers and also did repairs for them. However, when I asked him the same question again, he said that he concentrates more on carpentry at present and had stopped forging new implements four years back. This is partially because of his ill health and his age, but primarily because the number of client families had reduced to a considerable degree. He regretted that most of his clients had left for Middle East and he only serves 10 permanent client families at present. Each family pays him 60-70 kgs of rice every year, which translates into 40 *Qunchas* of rice in local measure. He said that there are 500 families of farmers in the village, but most of them are either using machines or leaving for Middle East to seek better income.

I asked him if he was from the *Mudda Kammari* community. Lakshmirajam replied that he must be from a *Kammari* community as the *Mudda Kammaris* do not exist anymore. I asked him what he knew about the *Mudda Kammaris*, and if he had heard anything about them being present in the village. He replied that *Mudda Kammaris* made iron from stone and they were a different community. They are not included within the Viswakarma and are a lower caste. He had not seen smelting himself, or has met anyone from that community and does not have anything to do with them. He had heard about them from his father and grandfather.

Lakshmirajam said that there were five families of blacksmiths in the village earlier. However, three of them had left the village for the towns, and he and his brother are the only blacksmiths in the village. Earlier, when he used to forge new implements, the farmers bought scrap iron for their implements from urban markets. They also brought charcoal from their hearth for the implements. Depending on the size of the ploughshare



2-4 kgs of scrap iron is required to forge a share. These can be used for 2-3 years, after which, new shares would be required.

I asked him if he owns any agricultural land. He said that both him and his brother owns 1 ½ acres of land. I asked him whether this piece of land was granted to him by the village authorities for serving the village community as blacksmith. This was what the village headman we spoke to in 2010 had informed us. However, I wanted to confirm this as this shows important community relationships within the village. Lakshmirajam said that his grandfather had purchased all if these three acres of land for himself and it was not granted to them by the village community.

Finally, I asked Laksmirajam if the next generation in the family has taken up blacksmithing. He said that since there is no profit in this work, the next generation did not feel attracted to it. His son is educated and teaches in a school in Jagtial. Lakshmirajam's son had never learnt blacksmithing.

I had taken his permission to take a photo of him and his smithy. Lakshmirajam had also permitted me to take sketches of them. The smithing hearth was more elaborate than what we had seen in last couple of days fieldwork. The hearth was constructed with low mud walls on two sides and a loose stone front wall, which gave the smithy a more permanent look. These smithies did not follow any orientation, however looking at the organization of space it seemed that Lakshmirajam and his brother faces North-North/East while forging. Probably the smithies are oriented towards the exact direction of the rising sun.

**INTERACTION 13****NAME:** A. KIRTANACHARI**AGE:** 39**DESIGNATION:** Silversmith**VILLAGE:** Pembarti, Warangal, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Hindi**DATE:** 11 January 2014

Kirtanachary lives in Pembarti, but he mainly works in Secundrabad, where he has a jewellery store and a workshop. He said that there are 300 *Viswakarma* families in Pembarti, and most of them are bronze and silversmiths. I asked him if there were any blacksmiths in the village. He said that there was only one family who do not live there anymore due to lack of work.

“Pembarti has 3000-4000 families. This is the biggest village in Warangal district”—  
Kirtanachari said.

I asked him how old the Mammayee temple was. He said that it was more than 300 years old. It seemed that the temple has a Chalukyan origin and later renovated and transformed quite a bit to bring it to its present form. It was undergoing a renovation before the Mammayee festival in early April, the beginning of Telugu New Year.

Based on this observation I asked Kirtanachari if this temple was always used as a Mammayee temple. Is there any knowledge about its earlier usage.

“The goddess came from Matikonda [a village near Warangal city, not far from Pembarti]. She was found on top of a hill there by a Viswakarma silversmith of the village, who had dreamt about it earlier.”—Kirtanachari said.

“Who works for the maintenance of the temple?”—I asked.

“We the Viswakarmas. 10 members are chosen every year from among us by an election. They are all from our community.” —he replied.

“So they are all silversmiths and bronzesmiths? No other Viswakarma community?” —I asked.

“Yes mainly us. Carpenters can also be chosen, but that is very rare and they do not show much interest in the cult.”—Kirtanachari replied.

I asked him about the annual festivals. Kirtanachari said that the festival takes place in March-April for four days leading up to *Ugadi*. Mammayee festival has been taking place since 1979 and the committee has also been celebrating *Shivaratri* and *Ganesh Chaturthi* for last ten years.

“Are there any other Viswakarma families other than silversmith and bronzesmith here?”—I asked.

“Most of the 300 Viswabrahmin families from the village now live in and around Hyderabad. Better business there. But in the village, there are 40 Viswakarma families now. Most of them work on bronze, silver and copper. All these families work on all these materials. There were 2-3 families who were carpenters and blacksmiths. But there is no work for them. So they also learnt brass and silversmith work. One blacksmith family has left the village in search of work.”—Kirtanachari explained.

Kirtanachari, as it was later revealed, is the present treasurer of the Mammayee temple. Someone brought a cash register to him for his signature. Kirtanachari apologised and said that he will have to go back to work.

**INTERACTION 14****NAME:** BRAHMACHARI**AGE:** 43**DESIGNATION:** Goldsmith**VILLAGE:** Ibrahimpatnam, Hyderabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Hindi**DATE:** 11 January 2014

Brahmachari is a goldsmith from Ibrahimpatnam, where we will also visit later today. He has a jewellery store in the outskirts of Hyderabad. He is one of the chief members in the Mammayee temple committee of Ibrahimpatnam, where, as he said, the temple is managed entirely by the goldsmiths.

“The goddess here came in the dream of a silversmith and asked him bring her here from a hill in Madikonda. She asked him to establish her here in a temple.” –Brahmachari started.

“What about the Mammayee temple in Ibrahimpatnam?” –I asked.

“That is the only Mammayee temple in Andhra Pradesh where we have the best sculpture of the goddess. The one here and the main one in Siddipet is not that old and not that beautiful. Siddipet temple is only 100 years old.” –Brahmachari said.

I asked him if he will help me to talk to the temple priest. He agreed.

“The name of the priest is Ashok Sharma. He is from the Viswakarma carpenter family.” – Brahmachari translated.

“Is he from the village?”—I asked.

“No he is from Kammappally village in Nasrampet Mandal of Warangal. His father is a carpenter. They hired him after the earlier priest died and brought him here. He lives in the temple.” –Brahmachari said.

“So any one from any community within Viswakarma can become a priest?”—I asked.

“Look. Viswakarma is a family. We work in five crafts. Our first ancestor, Viswakarma, had five sons. They took up five crafts. Anyone can work in any of the five crafts among the Viswakarma. The priest has to come from among us.”—Brahmachari explained.

“What about marriage? Can a bronzesmith marry a blacksmith?” –I asked.

“Yes everyone can marry everyone (in the caste).”—he said.

I asked him about Left and Right hand caste division that was written about and widely debated in scholarly literature. Brahmachari was not aware of any such divisions so I did not push the topic further. I did try to use *Valangai* and *Idangai*, the native terms for left and right hand castes in the region, but he failed to identify with the idea. The idea is probably not in force anymore, or may not have existed in the region ever.

I asked him about Veera Brahmandra Swamy.

“He is called Veerabrahmamgaru. He comes with his wife Govindamma. They were from Cuddappah district. He foresaw the future. If you go to Kandimallyapalle in Cuddappah, there is his temple and Ashram.”—replied Brahmachari.



**INTERACTION 15**

**NAME:** YEMNURI BODANNA, KUCHANAPALLY KONDAIAH, KUCHANAPALLY BAKKAIAH, KUCHANAPALLY POTTANNA

**AGE:** All above 70, Bodanna was the eldest

**DESIGNATION:** *Mudda Kammari*

**VILLAGE:** Dasturabad, Adilabad, Telangana

**INTERACTION TYPE:** Informal, loosely structured

**LANGUAGE:** Telugu/Hindi

**DATE:** 23 January 2014

They told me that there are 50 Mudda Kamari families in the village of Dasturabad. They said that this was the biggest concentration of the smelters in the area. I was proudly told that Dasturabad was the centre of iron-smelting in the past before it faded rapidly in last 50 years.

All of them had seen and helped in iron-smelting in their early youth and had since then taken up blacksmithing. I asked them which clients did they serve as smelters. Whether the iron went to the local markets or they made implements out of them for the farmers of the village. They said that while some of the iron went to the local market through Sahukars or middle men, they had a fixed number of clients like normal village blacksmiths, who bought freshly smelted iron from them and got their implements made by the same smiths.

I asked them about the ore. They said that the ore was collected from the nearby seasonal streams in form of iron rich sand. The ore sand was black and “light weight”. “After rains, the iron sand comes down. We collected the sand after rains every year”—they said.

I asked them how much iron sand they needed for a single smelt. Bodanna, after discussing with others, said:

“30 kg of iron sand required 10 kg charcoal and produced a bloom of 2 kg”

“What wood did you use for making the charcoal?” –I asked.

“Sandra *kattu*”—they said.

“Where did you collect this wood from?” –I asked.

“From here, in the forest. The tree is not much seen anymore. You need to go in the forest on the hills to get the tree and the wood.”—Bodanna replied.

I asked them how many bellows they used per smelt and what the bellows were made of. I was told that each furnace needed two bellows and they were made of goat skin. The bellows were driven by hand. The furnace, as Bodanna showed, was approximately 2 feet high.

“Did you make the bellows yourselves?”—I asked.

“No. The *Madiga* community made the bellows.”—They replied

“Who are the *Madiga*?”—I asked

“They are SC (Scheduled Caste) people. They are *Harijans* (untouchables) and they made the bellows because they worked on leather.”—They explained.

“Does this community live in the village?”—I asked.

“Yes. There is a very old *Madiga* man living till now who used to make bellows. But he cannot speak or see now. He is very old.”—they replied.

“So you got the bellows manufactured in the village?” —I asked in order to get a definitive reply.

“Yes, the village *Madigas* made them.”—Bodanna replied.

I asked them if there were any other villages in the area which had Mudda Kammari population. Bodanna said that there are some villages but all of them are the new generation and that they have all moved out recently from Dasturabad. They will not have proper information regarding smelting. I asked what these villages are. Bodanna gave me the following list:

1. Munniala
2. Gurcheryala
3. Guttapur
4. Kalmadugu
5. Birnandi
6. Somarpet
7. Rangapet

I asked them if they have a deity that they worship for smelting. Bodanna said that they worship Brahmamgaru (Veera Brahmendra Swamy) and Ammavaru (Govindamma) for five days preceding *Ugadi*. “In Ugadi we change our sacred thread after the puja”—Bodanna explained.

I asked them if they can give me a list of senior Mudda Kammaris of the village. The list is as follows:

1. Yemnuri Bodanna
2. Kuchanapally Kondiah
3. Kuchanapally Potanna
4. Kuchanapally Kondanna
5. Kuchanapally Bakkiah
6. Kuchanapally Hanumaiah
7. Kuchanapally Yerriah
8. Ramadugu Malliah
9. Ramadugu Narasimhulu
10. Ramadugu Ushalu
11. Yemnuri Chinna Narasaiah
12. Yemnuri Pedda Narasaiah
13. Desaradi Peddanna
14. Desaradi Nadipanna
15. Desarai Chinna Narasaiah
16. Kuchanapalli Bodanna

We thanked them and asked for directions of the villages that they mentioned.

**INTERACTION 16****NAME:** KUCHANAPALLI NARAYANA**AGE:** 65**DESIGNATION:** *Mudda Kammari***VILLAGE:** Birnandi, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 23 January 2014

Narayana confirmed that there are 2 blacksmith families in Birnandi, although it is him who is the only functional blacksmith in the village. I asked him if he was a Mudda Kammari, and he confirmed. He said that he migrated from Dasturabad and settled in Birnandi forty years earlier.

I asked him about smelting. “I have seen smelting. I haven’t done it myself though. I was too little to do it.” –Narayana explained.

“Was there smelting in Birnandi too?” –I asked.

“There was no smelting in Birnandi. You cannot find *chityam* here. Everyone was in Dasturabad and then they spread to other places. I came here 40 years earlier.”—He said.

“Why did everyone leave?”—I asked.

“They left because smelting stopped and there was not much to do. We needed work and money to live.”—He explained.

“How many families do you work for now?”—I enquired.

“20 families of farmers come to me. Earlier there were more but they stopped coming because of tractors.”—he said.

I asked him how much he gets paid from each family. He said that he receives payment in both cash and kind. It depends on the individual farmer. They either give him Rs. 600 per year or 50-60 Kg of paddy.

“Do you make new implements or mainly repair old implements?”—I asked.

“If the farmer wants new things then I make them. Otherwise I repair old items that they bring.”—he said.

“Where do you get the iron from for the new implements?”—I asked.

“The farmers get them from the market. I do not need to find them.”—Narayana replied.

Narayana said that the payment he received was not enough, therefore he works as carpenter on the side to earn some more money. Blacksmithing is only seasonal but carpentry has a demand all-round the year.

We thanked him for the information and asked his permission to take pictures of him and his workshop.



**INTERACTION 17****NAME:** RAMADUGU SHANKARAYA, RAJESHWAR KALLIPAKA, RAMADU KONDAIAH**AGE:** 55, 45 & 47**DESIGNATION:** *Mudda Kammari***VILLAGE:** Somarpet, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 23 January 2014

I asked them about the blacksmith families in the village. They said that originally there were 11 working blacksmith families, but now only two families work as blacksmiths. Others have moved away to other professions.

“Do all these families come from Dasturabad?”—I asked.

“We are all from Dasturabad. We all came here 30 years earlier.”—Shankariah said.

“Why did you leave Dasturabad?”—I asked.

“There was no work in Dasturabad. We came here for work. My father and grandfather made iron. But this stopped and we were all out of work.”—Shankariah explained as others nodded in agreement.

“Did any of you smelt yourselves?”—I asked.

“I saw my father and grandfather do it. I was too little to do it myself. And they were not even born.”—Shankariah said.

I asked Shankariah if he still does blacksmithing. He said that he had stopped working as a smith a few years back as there is not enough profit. He now works as a carpenter, which is more profitable. However, he said that Rajeshwar and Kondiah were the only two functional blacksmiths in the village.

“How many *Viswakarma* families are there in the village?”—I asked.

“There are 11 blacksmith families, some carpenters and only one goldsmith family.” – Shankariah responded.

“Is there any Viswakarma organisation?”—I asked

Three of them said that there is a small *Sangam* for the Viswakarma of the village. The eldest among the Viswakarma leads the organisation. The present head was V. Sachanarayana, who is a carpenter and his job is to solve disputes among the village Viswakarma.

I asked Rajeshwar and Kondiah about their work as blacksmith. Rajeshwar work for 20 families of farmers and Kondiah has 30 families. Both of them makes new implements if asked for, but their main job is to repair old implements of their clients throughout the agricultural season.

“How much does one family pay you for your work?”—I asked.

“1 family gives us 50 kgs of rice after the *Sankranti* (January), which is the harvest season. We have to make as many implements they want in a year in exchange of this 50 kg of rice.”—Kondiah replied.

“How many implements does a farmer need per year?” –I asked.

“Earlier, when they did not use tractors, one family needed 2 ploughs. There are a total of 20 tools that a farmers need to cultivate and harvest his crop depending on the size of his field. The things we normally make are :

10 *Khurpelu*

4 *Godalu*

4-5 *Konkallu*

3 *Palgulu*

3 *Dadra*

5 *Kodwalu*

2 *Gadaparalu*

2 *Karru*

2 *Paralu*”

I asked them if they knew of any other villages in the area with Mudda Kammari families, who may have knowledge about smelting. Shankariah said that since the old smelters have mostly passed away, acquiring knowledge about this will be difficult. However he named the following villages and asked us to try our luck there:

1. Gangapur: 8-9 families
2. Pembri: 10 families
3. Mandapally: 6 families
4. Rajoru: 15 families
5. Kanapur: 20 families

He said that we should ask for Kuchanapally Narasaiah in Pembi. He may have relevant knowledge.

We thanked all of them for their time and help.

**INTERACTION 18****NAME:** BUCHHANNA**AGE:** 61 (approx..)**DESIGNATION:** Blacksmith**VILLAGE:** Bornapalli, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 24 January 2014

Buchhanna told us that there are 4 blacksmith families in the village at present. All of them, including himself, works as a blacksmith and a carpenter. Buchhanna said that he had to take up carpentry because blacksmithing is not at all profitable at present. “I am still doing it because my father and grandfather did it”—Buchhanna said.

“Do you know about iron smelting?” —I asked

“Yes. I heard about it from my father. They said it was done nearby sometime back”—He said.

“Was your family involved in smelting?”—I asked, trying to avoid a direct question about their possible Mudda Kammari identity.

“No, my family was not involved. But I heard about them. The Mudda Kammaris. We are not them.”—explained Buchhanna.

I asked him if there were any Mudda Kammari families in Bornapalli or nearby villages.

Buchhanna said that although he had heard about the Mudda Kammaris and making *deswali* (non-industrial iron), he has no knowledge whatsoever about their whereabouts.

However, he said that he had seen the carpenters of the village making the wooden bellow frames for the blacksmiths' hearths.

"Can you make bellows yourself?" –I asked.

"Yes. My family has been using them for generations and I learnt how to make them." – Buchhanna replied.

Buchhanna ended the interview abruptly and apologised because he had to leave for Karimnagar immediately. He asked us to visit Mallyala Muttyampeta, near Jagtial if we wanted to learn more about smelting. He said that it was popular for smelting in the past. We followed his bike to the main tarmac road, where he gave us directions for Mallyala before leaving for Karimnagar.



**INTERACTION 19****NAME:** RUDROJU BHIMALINGAM & RUDROJU RAJANNA**AGE:** 65 & 39**DESIGNATION:** *Mudda Kammari* (present owner of welding stores)**VILLAGE:** Mallyala-Muttyampeta, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 24 January 2014

Bhimalingam's family have been living in Mallyala for generations. They are from a traditional blacksmith family and had been carrying the family tradition forward. I asked them how old the welding shops were. Rajanna said that the shops were almost 15 years old. They used to have farmer clients earlier and used to have small workshops in their homes, but due to increased use of tractors in agriculture, there is no money in traditional blacksmithing. Hence they decided on a welding shop.

"What do you make in the welding shops?"—I asked.

Rajanna showed me some unfinished gates, window grills and other iron furniture fittings lying around, apart from working on repairs and on automobiles sometimes. "No farmers now"—Bhimalingam said.

"Can you tell me anything about smelting in Mallyala?"—I said showing him the piece of slag I picked out from the mud-brick wall of Lingiah's house. Bhimalingam immediately recognized it.

“Our fathers used to do this. I saw them doing very less amounts when I was a child.

Then they stopped. They did more earlier.”—Bhimalingam replied.

“So you are from a Mudda Kammari family?”—I asked.

“Yes we are Mudda Kammaris. We made *mudda* from *wuske*.”—Bhimalingam emphasized.

I told him that we had been to Dasturabad the day before, where they also made iron.

Bhimalingam said that he knew about Dasturabad and he had some distant relatives in that village. It appears that his son Rajanna did not know about this ancestral heritage and had started taking more interest in the discussion from now on. He ordered warm milk from his house as we continued to speak.

I asked Bhimalingam if he can recall the process of smelting that he might have seen or hear about from his father and other relatives.

“They brought *wuske* from the nearby stream in the hill you can see over there [pointing at the hill behind the village]. Then they put that in the furnace and made *mudda* out of it.”—Bhimalingam said.

“Can you describe the furnace?”—I asked.

Bhimalingam tried to recall but he said that he had forgotten. He indicated that it was about 4-5 feet high with his hand.

“Why did they stop smelting?”—I asked.

“Because of the cheap iron from market. Also because *wuske* stopped coming.”—Bhimalingam said.

“What do you mean by that?” –I asked.

“The streams dried up and there was no more *wuske* in the stream which was good enough to smelt.”—Bhimalingam explained.

“Can we go and see stream?” –I asked.

“Yes the stream is still there. But you will not see any *wuske* now. *Wuske* only comes after rains in the monsoon.”—Bhimalingam explained.

“So is that when the smelting happened too?”—I asked.

“Yes. You can only smelt when you can find *wuske* after fresh rains in the monsoon.”—Bhimalingam said.

A second round of milk was served. Bhimalingam asked Rajanna to take us to the hill and show us the stream. Rajanna had seen the stream before but did not know its smelting connection. He was interested to see it and investigate it again too. Rajanna asked us to wait at the workshop as Bhimalingam and him went to eat lunch in their respective houses.

**INTERACTION 20****NAME:** DESARADI KONDAIAH & DESARADI NARASIAH**AGE:** 74 & 45**DESIGNATION:** *Mudda Kammari* (but currently works as blacksmith)**VILLAGE:** Kalmadugu, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 25 January 2014

Both Kondaiah and his son Narasaiah agreed to speak to us in the front porch of their house. However, they said that they will be grateful if we do not ask any questions about *Mudda Kammari* community.

“We’re not *Mudda Kammari*. Do not know anything about them. They don’t exist. We are just *Kammari*.”—Kondaiah said.

“Are you from the government?”—enquired Narasaiah.

We assured them once again that we were not from the government and our data will be used for academic purposes only. Narasaiah explained that since that was the national election year with the prospect of Telangana becoming an separate state, his father is worried about a government survey which will take the BCB (Backward Caste “B” category, with highest percentage of reservation in Telangana government sectors) tag from them and they will not have access to as much state welfare as they have now. I understood his concern and reassured him once again showing him the papers issued to

me by NIAS and Exeter. I also showed them my student ID from Exeter. Narasaiah had explained this to his father and both of them agreed to answer our questions. However, they were clear that they do not have much time so we better be quick.

“How many blacksmith families are there in Kalmadugu?”—I asked.

“4 houses of *Kammari*. But as I said, NO *Mudda Kammari*.”—Narasaiah answered and Kondaiah nodded.

“Do all these four houses share the same surname?”—I asked.

“Yes. We are all related. My son moved to his own house after he had his own family. We came here two generations back as one family and now we have four houses. All are Desaradi. Apart from us, there is Desaradi Sataiah and Desaradi Chinna Kondaiah.” — Kondaiah explained.

I asked Kondaiah where his family had originally resided, since he said he had come to Kalmadugu two generations back.

“We come from Dasturabad.”—Kondaiah replied.

I told them that I had been to Dasturabad and met some of the blacksmiths there. I read out the names of Desaradi Pedanna and Desaradi Nadipanna from the list of names of *Mudda Kammaris* I collected from Dasturabad. Both Kondaiah and Narasaiah recognized them and said that they are all related and are part of the same family.

“What other *Viswabrahmin* families are there in the village?”—I asked.

“Just us and *Auslolu* (goldsmiths).”—Kondaiah said.

I asked them how many goldsmith houses are there in Kalmadugu. Kondaiah said that there are three houses and their names are:

1. Engurthi Sataiah
2. Sriramulu Kondaiah
3. Sriramulu Sekhar

I thanked them for the information and asked for directions to reach Guttapur village, which was our next destination. Kodaiah explained the directions to Pradeep and said that we can meet Kanchari Narender in Guttapur. Narender is from a blacksmith family and might be helpful for our purpose.

We thanked them again and left for Guttapur.



**INTERACTION 21****NAME:** KANCHARI BUCHHARAJAM**AGE:** 63**DESIGNATION:** *Mudda Kammari* (present owner of village grocery store)**VILLAGE:** Guttapur, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 25 January 2014

Reaching Guttapur, we were directed to the grocery store of Kanchari Buchharajam, the father of Kanchari Narendar. Narendar had gone to Kadem (the nearby town) to run some errand was not expected until later that day. Buchharajam was in his store. After serving the waiting customers, he asked what we wanted. Pradeep explained the purpose of our visit and we made it clear that we were not from the government. I wanted to show my ID, but Buchharajam said that it was not necessary. He had already heard about us from his relatives in Dasturabad and would be happy to help with information. We started talking sitting in front of his shop.

I asked him if his family was a *Mudda Kammari*.

“Yes we are all *Mudda Kammari*. You will find *Mudda Kammaris* in between here and all the way till Nirmal.”—Buchharajam said.

“How many families of *Mudda Kammaris* are there in Guttapur?”—I asked.

“There is only one family. But there are three houses. Me and two other brothers Kanchari Narasaiah, my elder brother, who is dead, and Kanchari Rajam, my younger brother.”—Buchharajam said.

I asked him if his family had lived in Guttapur for a long time. Buchharajam explained that his father had come to Guttapur four decades back because there was no work for the *Mudda Kammaris* in Dasturabad. They have been living here since then.

“Do you know about smelting?”—I asked.

“I have seen them doing it when I was very small. But I did not do it myself. I heard from my father that more *mudda* was produced earlier. Now it has all stopped’—Buchharajam explained.

“Did you work as a blacksmith earlier? Or you own this shop for a long time?”—I asked

“All of us worked as blacksmiths. But now there are tractors. No money in blacksmithing. I stopped it 4 years back and have this shop. My son is a carpenter and occasionally does blacksmithing when required.”—Buchharajam explained.

I asked him if he can help us draw a kinship diagram for his family. Buchharajam said that he did not know much but he can tell us about his father and the present generation (see diagram in Kinship Diagram Appendix).

We thanked Buchharajam and asked route directions for Godiseriyala. Buchharajam said that we should look for Kuchanapally Lakshmirajam and his brother Kuchanapally LaxmiNarasaiah there because they are *Mudda Kammaris* from Dasturabad presently living in Godiseriyala.

**INTERACTION 22****NAME:** KUCHANAPALLY LAXMIRAJAM & KUCHANAPALLI LAXMINARASIAH**AGE:** 63 & 60**DESIGNATION:** *Mudda Kammari* (present owners of big farms)**VILLAGE:** Godiseriyala, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 25 January 2014

Laxmirajam and his brother live in a large mansion on the outskirts of Godiseriyal. Theirs is easily the largest house of the village which emphasizes on their affluence. When we arrived, Laxmirajam was supervising the weighing and sorting of paddy from his fields. There were a large number of sacks outside his house and a quite a few people who seemed to work as agricultural labourers under him. Laxmirajam was dressed in traditional white dhoti and a well ironed white shirt, the signifier of status and well to do existence. Laxminarasaiah was more modestly dressed.

Seeing us Laxmirajam wanted to know what we needed him for. He mistook us to be government employees and said that he will entertain us at a later point as he was busy with his crops then. Pradeep explained to him about the academic purpose of our visit. He demanded identification, and when produced his voice became more friendly. He invited us to the inner courtyard of his mansion and asked us to wait for half an hour. Warm milk was offered and we did not refuse it.

Laxmirajam and his brother Laxminarasaiah returned after half an hour and sat with us. Laxmirajam apologized for his behaviour earlier and explained that he did not want election officers interrupt his work at that point. We said that we perfectly understood his concern and there was no apology necessary.

I asked Laxmirajam and Laxminarasaiah if they have lived in Godiseriyala all their lives. Laxmirajam, who was doing most of the talking, said that they had lived all their lives in the village. “However”, Laxmirajam added, “My mother’s father was from Dasturabad. My family, and their [his mother’s] family had come to Godiseriyala from Dasturabad 100 years back.”

“How many families of blacksmiths are there in Godiseriyala now?”—I asked.

“There is only one family. There are three houses of blacksmiths. But we are all related.”—Laxmirajam replied.

“Do any of them work as blacksmith now?”—I asked.

“We all worked as blacksmiths. See there is my brother’s smithy [pointing to an anvil and a fan bellow in the corner of the courtyard]. He (Laxminarasaiah) still works when there is repair work. But actually all of us stopped due to machines. You call that “globalisation” don’t you?”—Laxmirajam said, as his brother nodded in agreement.

“Do you know about iron-smelting?”—I asked.

“We’re *Mudda Kammaris*. Everyone in Dasturabad is a *Mudda Kammari*. We made *mudda* from *wuske*.”—Laxmirajam said proudly.

“What is the difference between *Mudda Kammari* and normal *kammari*?”—I asked.

“No difference. Everyone is a *Kammari*. But since we made *mudda*, we’re called *Mudda Kammari*. Everyone is the same.”—Laxmirajam explained.

I asked if they knew or remembered anything about the smelting process. At this the brothers discussed with each other and then Laxmirajam said “(My) mother and father are both from Dasturabad. They used to visit Dasturabad often and they saw smelting there. We went there when we were kids. We saw some smelting, but do not remember the process. Father told us that they used *wuske* and used air from *tittulu* (bellows) to make *mudda*.”

“What happened after the *mudda* was prepared?”—I asked.

“*Sahukar* purchased them from the *Mudda Kammaris*. They collected the *mudda* and sold them to the farmers in the markets. They travelled a lot for this. To markets in faraway villages.”—Laxmirajam and Laxminarasaiah explained.

“What about the farmers in Dasturabad? Did they go to the market to buy *mudda* or they bought them directly from the *Mudda Kammari*.”—I asked.

“They bought *mudda* from the *Mudda Kammari* directly and asked them to make implements.”—Laxmirajam replied.

“So the *Mudda Kammari* work as *Kammari*? The farmers do not need to go to a different group for their implements?”—I asked.

“In Dasturabad the *Kammari* and *Mudda Kammari* are same. Where they did not make *Mudda*, they only have *Kammari*.”—Laxmirajam replied.

Laxmirajam asked where we will be going next. We said that we were targeting Munniyala, as we heard that there are some *Mudda Kammaris* still living in the village.

Laxmirajam and Laxminarasaiah discussed something among them and gave us the following names of *Mudda Kammaris* who will be able to help us in our research:

1. Yemnuri Pedda Gangaiah of Munniyala
2. Desiradi Ganganna of Ambaripet
3. Desiradi Bhumanna of Lingapur
4. Kuchanapally Pedda Narasaiah of Peddur near Kadem.

We thanked them and took our leave. Laxmirajam said that he will be interested to see this research in publication and asked for a copy in advance.



**INTERACTION 23**

**NAME:** YEMNURI PEDDA GANGAIAH, YEMNURI CHINNA GANGAIAH & YEMNURI LAXMI

**AGE:** 77, 73 & 79

**DESIGNATION:** *Mudda Kammari* (currently working as village blacksmiths)

**VILLAGE:** Munniyala, Adilabad, Telangana

**INTERACTION TYPE:** Informal, loosely structured

**LANGUAGE:** Telugu/Hindi

**DATE:** 25 January 2014

Yemnuri Pedda Gangaiah and Chinna Gangaiah are brothers. They are the only blacksmith families in the village of Munniyala. Yemnuri Laxmi is the widow of Gangaiahs' elder brother who had passed away a few years back. We met all of them in the courtyard of Chinna Gangaiah's house. Initially Chinna Gangaiah was sceptical about speaking to us and said that he did not work as a blacksmith now and does not know much about smelting either. "That was all finished before I was born", Chinna Gangaiah said. Laxmi said that she remembered something but what she was saying was not very clear due to her age and lack of teeth. Also she was insistently stopped by Chinna Gangaiah from speaking.

We were about to leave since Chinna Gangaiah was not particularly happy with us present there. At this point Pedda Gangaiah emerged from the house. He is the elder brother to Chinna Gangaiah and the eldest man alive in the family. Pedda Gangaiah

pacified his brother and asked the purpose of our visit. Pradeep explained this once again to him and I asked him to make it very clear that we do not have any political intentions behind this. Pedda Gangaiah seemed to understand and relayed that to his brother.

“The vote is coming. They are all scared about goons of politicians coming to purchase votes.”—Pedda Gangaiah said.

“We’re conducting academic research. We are far away from politics. I will not even use your names if you do not want to. And we will leave if you want us to leave. But we’re here to learn about smelting from you since you have the knowledge that not many people seem to have these days.”—I said.

“I don’t care about my name. Use it if you want to. I will tell you about what I know of making *mudda*. But nothing exists now. I need to pass the knowledge on. But no one is interested.”—Pedda Gangaiah said.

At this Chinna Gangaiah tried to protest but was brushed aside by Pedda Gangaiah. We thanked Pedda Gangaiah for being understanding and being willing to share his knowledge. He started describing the process without us questioning. Laxmi contributed with her insights about what she had seen.

“The hill behind the village used to be with *wuske*. But you don’t get it anymore. The ore stopped coming through the stream. The wood is not there too. Without these we cannot make *mudda* anymore. We have all become old. It is a heavy work. We cannot work anymore. Earlier they made iron everywhere. In Dasturabad, Bellampally, Kagaznagar, Manchheriala and Pembi. None does that now.”—Pedda Gangaiah said in one breath.

“What kind of wood did you use for smelting?”—I asked.

“*Sandra Kattu*”—Pedda Gangaiah said.

“Did you smelt yourself?”—I asked.

“Yes I used to help my father in Dasturabad to make *mudda*.”—Pedda Gangaiah replied.

“And you?”—I asked Yemnuri Laxmi.

“Men only worked. But we all saw them doing it when we were in Dasturabad.”—Laxmi said.

I requested Pedda Gangaiah to describe the process. At this he sat on the floor and drew a circle on the dirt with a stick and started to explain.

“There were two *kolimis* (furnaces) at work in Dasturabad. They were about 5-6 feet high (shows height estimate with hand). There are three holes at the bottom of the *kolimi*. Two holes opposite to each other for *pedda tittulu* (big bellows) and one for running the *chittiyam*. There is a straight channel attached to the top of the *kolimi* to feed the furnace with *boggu* (charcoal) and *wuske* when needed.”—Pedda Gangaiah said.

“Where did the *mudda* come out from the furnace?”—I asked.

“There was another hole on the bottom where we saw if the *mudda* has formed. When it was time we pulled it out from there.”—he replied.

“How long did one smelting take?”—I asked.

“We started at 1 or 2 in the night and had a *mudda* by 8-9 in the morning.”—he replied.

“Who made the *boggu*?”—I asked.

“We made it ourselves. A team among us including elders went to the forest to select wood and then *boggu* was made.”—he replied.

“Did you bring the wood back and made *boggu* in the village near the smelting area?”—I asked.

“It is easier to make *boggu* in the forest and then bring them. It is not heavy that way.”—Gangaiah replied.

“What about *wuske*?”—I asked.

“The *wuske* would come out after every fresh rain in the channel of the stream. It was collected from there on the foot of the hill and then carried to the village.”—Gangaiah replied.

“Who carried it? You or the women?”—I asked.

“The senior smelters and some of the younger ones had to be there to select proper kind of *wuske*. Then it was mostly the men who carried them in bullock carts to Dasturabad.”—Gangaiah replied.

“Can you tell me how *boggu* was made?”—I asked.

“*Sandra Kattu* were dumped in the forest and covered with soil and dry leaves. Then fire was added. After one day good charcoal could be obtained. Sometimes it took longer than that.”—Gangaiah replied.

I asked Gangaiah what happened with the bloom after smelting. Gangaiah said that the bloom was divided among the smelters who helped smelting and some of it was sold to the *Sahukars*, while other parts were sold to the farmer clients of the smelters or in the

village market. The farmers then placed their orders to forge new implements. After we were finished talking, I asked Pradeep to ask Gangaiah for directions to reach the hill where they collected the ore from. Gangaiah said that we will not be able to find the stream ourselves as there are specific places where the ore was and still is available in less quantity. He asked us to wait for fifteen minutes after which he can lead us to the forested hill.

**INTERACTION 24****NAME:** ULLI BOMANNA**AGE:** 67**DESIGNATION:** Probably *Mudda Kamhari* (currently working as village blacksmiths, denied being *Mudda Kamhari*)**VILLAGE:** Peda Bellala, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 30 January 2014

We met Ulli Bomanna in front yard of his house where his workshop is also situated. In 2010 we visited Pedda Bellala and identified considerable evidence of smelting in the village as well as on the way to neighbouring Chityala. Since this village is situated near Dasturabad and the circle in which the *Mudda Kammaris* are dispersed, I decided to explore the ethnographic landscape in terms of blacksmithing here. When Pradeep explained the purpose of our visit to Bomanna, he immediately recalled that a group of foreigners had visited in 2010 and had collected some samples from the slag heap adjacent to the house of the village Imam. Bomanna was sceptical about talking to us for too long, but after repeated request he agreed on a short interview.

I asked him if he knew about smelting and if he had seen smelting in his childhood. Bomanna replied, “I know about making *mudda*. I’d seen my relatives in Dasturabad make *mudda* when I was a child.”



“Is your family related to the families of *Mudda Kammaris* in Dasturabad?”—I asked.

At this Bomanna got really agitated.

“Ulli only belongs to this village. you will not find any Ulli anywhere else in the area. And I am NOT a *Mudda Kamhari*. I do not have any contacts with Dasturabad.”—Bomanna replied.

I asked him that he had said that he had seen smelting from his relatives in Dasturabad. At this Bomanna replied that we had mistaken. He had visited Dasturabad a few times with some of his acquaintances who are not related to him. So he cannot be termed as *Mudda Kamhari*.

“Who told you about me?”—Bomanna demanded.

“We heard about you from Kuchanapally Laxmirajam of Godiseriyal.”—I answered.

“I know him. He and his brother are *Mudda Kamhari*. They are a big landlord in Godiseriyal now. Their mother is from Dasturabad and they are related to us in some way.”—Bomanna explained.

I asked him once again if his family had any relatives in Dasturabad. Bomanna said that he used to have relations in the village. But he is not in touch with them anymore. And he is not a *Mudda Kamhari*. “If you’re looking for *Mudda Kamhari* then go to Rangapeta. There is a very old *Mudda Kamhari* named Kuchanapally Bakkanna. There is another one named Narasaiah in Pembi. You will find *Mudda Kamhari* there. Do not bother me with this anymore.”—Bomanna instruct in an irate tone.

We apologised for inconveniencing him and he said that it was fine. I asked Pradeep to keep talking to him and try to pacify him as I wandered off to see the smelting debris in

between an old house owned by the village Imam and an old, presently semi-dry tank excavation at the edge of the village.

When I returned, Bomanna had already cooled down. He told us that he was worried about the elections and that with the election and the coming of the new state of Telangana, his BCB privileges might be compromised. Bomanna said that he is from a *Mudda Kammari* family and have relatives in Dasturabad, Godiseriyal and Somarpet. But he did not know much about smelting because he was a child when he saw that last. He allowed us to take his genealogy down in the form of a Kinship Diagram.

**INTERACTION 25****NAME:** MEDARAM SWAMY & MEDARAM RAVI**AGE:** 39 & 37**DESIGNATION:** *Kammari***VILLAGE:** Chityala, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 30 January 2014

Medaram Swamy and Medaram Ravi are two brothers who are village blacksmiths for the village of Chityala. Chityala is located in an area which has a high occurrence of archaeological evidence of iron-smelting. Its proximity to the core *Mudda Kammari* circle at Dasturabad made this an important location to investigate the blacksmith community of the village.

We met Swamy and Ravi at their courtyard and explained the objectives of our research. They were willing to speak to us. However, they said that they do not know anything about smelting. They haven't even seen *chityam* apart from the smithing slag that comes out near their working hearth. I showed them one piece of slag that I carried around my pocket. They said that the piece looked like a bulkier version of the smithing slag that they are acquainted with.

"How many families of blacksmiths are there in Chityala?"—I asked.

“There are 3 blacksmith families. But all of us are related and all of us came from Shekallah during the time of our grandfather.”—Ravi said.

“So you have never heard about or seen smelting?”—I asked.

“No. As I said, we are not from here. We are from Shekallah in Karimnagar district. So we do not know what you are talking about.”—Ravi said as Swamy nodded his head in agreement.

“I’ve been to Shekallah. I met Sudarshan and his nephew Nagaraju Medaram. Are you related to them?”—I asked.

“We’ve heard about Sudarshan, but we do not go to Shekallah at all. So we do not know who is living there now. No connections with Shekallah. And those big *chityam* here. I think someone from outside the village had come and put them there or made iron as you said.”—Swamy replied.

“So how many families of farmers do you work for at present?”—I asked.

“My brother works for 10 houses and I work for 8 houses”—Ravi said.

“And when is the peak time for blacksmithing?”—I asked.

“In 7<sup>th</sup> and 8<sup>th</sup> months (July and August). We start working when farmers bring their orders just before and during the rains. Before they start cultivating their fields.”—Swamy explained.

“How many implements per farmer you make?”—I asked.

“As many they need. Sometimes they just need to repair old implements. We do that. Others need new implements. We make those for them.”—Swamy said.

“And do they pay you in money or in grains?”—I asked.

“Grains only. Once a year. 70 kg of grain per house. We do not take money.”—Ravi said.

“What about repairs from non-farmers?”—I asked.

“We take small money from them. But mostly they buy new implements from the market.

They do not need us.”—Swamy said.

We thanked Swamy and Ravi for sharing the information about their lives. Pradeep asked for route directions to Rangapeta before we left.

**INTERACTION 26****NAME:** KUCHANAPALLY BAKKANNA**AGE:** Above 90**DESIGNATION:** *Mudda Kammari***VILLAGE:** Rangapeta, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 30 January 2014

We met Kuchanapally Bakkanna in his thatched hut adjacent to the concrete house of his son. Bakkanna was resting on his bed after lunch. He looked really old, bony and fragile. Vision in his right was non-existent and his wife said that he had broken his arm a few months back and is still recovering from that. We explained the purpose of our visit and said that we would not bother them if it is too much of an effort. Bakkanna's wife wanted to take his permission first before she could lead us in his chamber. We waited for 10 minutes and she came out and said that Bakkanna had agreed to speak to us about smelting. She said that Bakkanna was very happy because none, not even his son asks him about smelting these days. He was happy to share his knowledge, but we will have to be slow and patient with him since his memory has blurred over the years and he had slowed down as he aged. We assured that we were not in a hurry and we have all the time he needs. I asked if we could record the interview, but both Bakkanna and her did not agree to that proposal.



We started talking slowly in Bakkanna's room.

"My forefathers were from Khanapur [presently a booming town in Adilabad district]. They came to Dasturabad. Kondiah and Sankhagaru [were their names]. We all smelted and lived in Dasturabad. Kuchanapally Narasaiah of Pembi also smelted with me. But it all stopped and my son and I moved here with our families 40 years ago to work as a smith."—Bakkanna said slowly.

"Can you tell us something about the smelting process?"—I asked.

"16 elder smelters worked together mainly."—Bakkanna said.

"What about the women and children?"—I asked.

"Women did not work in smelting at all. They did housework. Children helped us after they were old enough. There were *Are Vaishyas* [*Sahukars*], some people used to come from far like Utnoor. They bought our iron from them [the *Are Vaishyas*]."—Bakkanna stopped to catch a breath.

"We brought *wuske* from the *nalli*. Washed them, pulverised them if needed. Then we collected the *Sandra* from the forest. We dug a hole and put the wood. We covered the wood with dust and leaves. We then set fire on the heap and wait for 2 days to get *boggu*."—Bakkanna explained.

I told him that we went to see the hill near Munniyala with Gangaiah. He showed us the stream where *wuske* was collected from. Bakkanna said that Gangaiah is related to him. Pedda and Chinna Gangaiah are his sister's sons.

"What happened after *wuske* was collected and *boggu* was made? How did you bring these to the village?"—I asked.

“4-5 people went to the forest to collect the wood and make *boggu*. They collected Sandra *kattu* and Korda *kattu*. They brought four [bullock] carts full of *boggu* to Dasturabad. When the charcoal was finished, fresh charcoal was prepared.”—Bakkanna said.

“Do these 4 people specialize in charcoal making?”—I asked.

“No we all knew how to do everything. The duties came in turns. And there were always senior people in the group to look after the work.”—Bakkanna replied.

“And then the smelting started?”—I asked.

“There were two furnaces in Dasturabad. We worked them in groups overnight. Made *boggu* in the morning. Started working the *kolimi* after dark and we worked overnight to make *mudda*. 2 *muddas* [were obtained] from one furnace.”—Bakkanna said.

“Did these furnaces belong to anyone?”—I asked.

“No. These were for the entire village. Whoever brought *wuske*, can smelt there. We worked together as friends.”—Bakkanna replied.

“How long was the smelting process?”—I asked.

“We started at 2 in the night [am] and finished by 9 in the morning.”—Bakkanna said.

“Why was the smelting done overnight? Is there any restriction about doing it in the day?”—I asked.

“It is cold in the night. Also easier to see if the *mudda* has formed. The colour of the fire in the furnace changes. It becomes like *indradhanushalu* [rainbows] when *mudda* is completed.”—Bakkanna explained.

“What happened after smelting?”—I asked.

“We took *mudda* out and hammered it. There were still some *chityam* in the *mudda*. So we placed it in a small hearth and hammered it to take the *chityam* out. This is called *Lappa*. Then we divided the *mudda* among us. We made implements out of them or sold them to the *Are Vaishya*. After that we started smelting again when we needed to make more *mudda*.”—Bakkanna replied.

I asked him about the division of labour again in smelting.

“8 people worked in each *kolimi*. Some people went to get *wuske*. Some made *boggu*. Some would sit near the furnace and do the smelting. Everyone helped in doing everything. Running the *pedda tittulu* [large bellows] needed people to help each other [alternate].”—Bakkanna said.

“How many bellows were required per furnace?”—I asked.

“2 *pedda tittulu* for making *mudda*, and 2 for *Lappa*.”—Bakkanna explained.

“And these were operated by hand? What were the bellows made of and who made them?”—I asked.

“Yes they were operated like this [he shows in hand signs]. Buffalo skin and wood was used to make them. We did not touch buffalo meat, so we let *Madigas* make them for us. We needed new bellows every 2 days [of smelting]. There were a lot required.”—Bakkanna said.

“And who made the *kolimi*?”—I asked.

“We made them. It took 3 days to make one *kolimi*.”—Bakkanna said.

“Did you break the whole *kolimi* after each smelt?”—I asked.

“No, we repaired it. We had to make new tuyeres after each smelting though. Cannot reuse the old ones.” –Bakkanna explained.

“Who were your clients? Who bought the implements you made?”—I asked.

“The farmers of the village. Gondlu (the Gonds) bought digging sticks but not any other agricultural implements. Farmers bought other things too. They paid us 10 *kunchas* of grain per year. We also sold *mudda* to *Sahukar* for Re. 1 per *mudda*. We used to hide the *mudda* and the money came from it under soil because we feared thieves.”—Bakkanna replied.

“Did you worship any god/goddess before starting to smelt?”—I asked.

“We worshipped Mahisamman [the buffalo goddess] and Kalika Devi. Sacrificed a goat before smelting in a new furnace. That was required.”—Bakkanna said.

“Can you recall the names of the people who smelted with you?”—I asked.

“Yes. I remember them clearly.

1. Yemnuri Narasimhalu
2. Kuchanapally Bhumanna, my grandfather
3. Kuchanapally Bakkanna, myself
4. Marveru Addakaru Bodanna
5. Ramadagu Ramanarasaiah
6. Desaradi Nadipanna
7. Kuchanapally Yerraiah
8. Kuchanapally Lakshmaiah
9. Kuchanapally Nadipanna

#### 10. Kuchanapally Narasaiah

Bakkanna was getting exhausted. It was time for us to leave. We thanked him and his wife for all the information left for Jagtial.

**INTERACTION 27**

**NAME:** KUCHANAPALLY KONDAIAH, KUCHANAPALLY SRINIVAS & KUCHANAPALLY BHULAXMI

**AGE:** 45 & 40

**DESIGNATION:** *Mudda Kammari* (currently works as carpenter and part-time blacksmith)

**VILLAGE:** Pembi, Adilabad, Telangana

**INTERACTION TYPE:** Informal, loosely structured

**LANGUAGE:** Telugu/Hindi

**DATE:** 31 January 2014

Following the cue from Bakkanna the previous day we arrived at Pembi in search of his comrade Kuchanapally Narasaiah. We met his sons Kuchanapally Kondaiah and Kuchanapally Srinivas instead at their house at the edge of the village. They informed us that their father Narasaiah had passed away 20 years back. “You can go to Rangapeta again and look for my father’s brother, Kuchanapally Laxmipathy. He might know something.”—Srinivas said.

“We heard from Bakkanna that your father lived in Dasturabad. When did he move here?”—I asked.

“My father shifted here 30 years back. There was no work in Dasturabad and people here invited my father to come and stay in the village as there was no blacksmith to serve the farmers here. My father’s father was from Rangapeta and my mother’s family is from



Dasturabad. Father lived in Dasturabad because other members of our family were there.”—explained Kondaiah.

“Do you still work as village blacksmiths for Pembi?”—I asked.

“No we left blacksmithing. There was no income in it due to lack of demand and due to tractors [use of tractors in agriculture]. We do repairs occasionally if anyone asks as to do it. We used to make agricultural items. But now everyone prefers to go to the *Shisha Kamhari* and get them made for cheap. We now work mainly as carpenters.”—Kondaiah and Srinivas explained.

At this point Kuchanapally Bhulaxmi, the mother of Kondaiah and Srinivas came outside to ask if we wanted tea or milk. She stopped to hear our conversation. She asked us which villages we visited already. Hearing that we had been to Godiseriyal and met Laxminarayana, she said that his mother and her are sisters and they lived in Dasturabad. I asked Bhulaxmi if she had seen smelting. She said that she had not seen smelting as much. But she had seen the bellows. Women did not participate in smelting process so she will not be able to tell us much about it. If her husband was alive, he would have told us in detail.

She went inside to bring us glasses of water that we had asked for.

“Smelting stopped almost 60 years earlier. We do not know much about it. We have just heard from our father but haven’t seen it ourselves. So if you go to Kuchanapally Laxmipathy, he will be able to help you better.”—Srinivas said.

We had our glass of water, and Pradeep jotted down the genealogy. We thanked them for their help and left for Rangapeta.

**INTERACTION 28****NAME:** KUCHANAPALLY LAXMIPATHY**AGE:** 56**DESIGNATION:** *Mudda Kammari***VILLAGE:** Rangapeta, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 31 January 2014

Laxmipathy's house is situated adjacent to the Hanuman temple of Rangapeta, a few houses apart from Kuchanapally Bakkanna's (Interview 26) house. Laxmipathy and his wife were sitting in the courtyard when we arrived. We explained them the purpose of our visit and also told him that we got their reference from the sons of Kuchanapally Narasaiah at Pembli. He welcomed us in the courtyard and offered us chair to sit and asked us what we wanted to know from him.

I asked him if he had seen smelting and if can share the smelting process with us.

"I have not made *mudda* myself, but I have seen my brother and parents do it."—  
Laxmipathy said.

"Could you please tell us what you saw and can recall?"—I asked.

"There were two *kolimis* in Dasturabad. The main families who smelted in Dasturabad were Desaradi, Kuchanapally and Yemnuri. There are fifteen/sixteen members among

these families who did the smelting in those two *kolimis*. If you meet Yemnuri Bodanna in Dasturabad, he will be able to tell us more about the working of the furnace. He supervised that because he cannot do any other works because of his disabled leg.”—Laxmipathy said.

I told him that we had already met Bodanna at Dasturabad and a few others. Showed him the list of names of present *Mudda Kammaris* in Dasturabad that we got from Dasturbad. He recognized all of them and said that he actually lives in Dasturabad but had very recently moved to Rangapeta as there was no work in Dasturabad. He was invited here by the farmers. However, there is not muc work in Rangapeta as well so he is planning to shift back to Dasturabad with his wife.

“Tell us more about the smelting.”—I requested.

“Only 15 members worked. They worked alone. Did not take anyone’s help. After fresh rains, they went to the hills to collect *wuske* from the stream. They also collected Sandra *kattu* to make *boggu*. Then they brought everything to the village and smelted in the *kolimi* to make *mudda*. There were *pedda tittulu* which needed to be pressed by hand to send air constantly in the *kolimi*. After the *mudda* was made, they heated it in a small *kolimi* to make it pure and then hammered it into a bar and sold it or made bullock cart rings out of them.”—Laxmipathy said.

“Why did the smelting stop?”—I asked.

“There used to be a canal near Dasturabad which was difficult to cross. There is a hill beyond that canal. The ore was obtained from a stream on that hill. Since the canal was made it was difficult to cross it and get ore and wood. This is why smelting stopped.

Again, this is what I heard from the elders. I was really small when it stopped so I do not know the real reason behind this.”—Laxmipathy replied.

“So the 15/16 people that worked together for smelting, can you tell us if they did everything together or there was specific tasks that was assigned to a group?”—I asked.

“They worked together. 15 people divided in two *kolimi*. In each *kolimi*, they divided the work. Some brought *wuske*, some made *boggu*, some worked on the furnace.

Kuchanapally Yerraiah, my father’s elder brother directed all of these work.”—Laxmipathy explained.

“What happened after the *mudda* was prepared and refined?”—I asked.

“The bar of *mudda* was sold to the *Sahukars* and also elders made implements out of them and sold them. The *chityam* was smelted later to make more small *mudda* and iron bars.”—Laxmipathy said.

“The *chityam* was smelted? All of the *chityam*, or specific types?”—I asked.

“The *chityam* which are small and are separated from the *mudda* in order to make it pure, were collected and put in a small furnace to smelt and get small *mudda*. Then they were also made into bars. Later they only smelted *chityam* in small *kolimi*, because large *kolimi* was not allowed.”—Laxmipathy replied.

After this Laxmipathy willingly helped Pradeep to write his family tree down. We thanked him for his time and left for Jagtial.

**INTERACTION 29****NAME:** VILASAGAR RAJAIAH & OTHER BLACKSMITHS**AGE:** 70**DESIGNATION:** Blacksmith**VILLAGE:** Buggaram, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 1 February 2014

The village of Buggaram is situated close to Ranamkota hill where we found a large amount of smelting remains in 2010. Since we did not investigate the village in 2010, I decided to explore the blacksmith community there to see if there are any *Mudda Kammaris* or a possible survival of memory about smelting. On reaching the village we asked about senior blacksmiths and were directed to the house of Vilasagar Rajaiah, who lives at the centre of the blacksmiths' quarters in the village and seemed to command prestige among the blacksmiths of Buggaram. We explained the purpose of our visit to Rajaiah and other smiths who had surrounded us.

"My family has not smelted you see. But I've heard about making *mudda* from others. This work went on in Sirukonda, Ranamkota and Padamativada, beside the house of a fakir."—Rajaiah explained.

"How many blacksmith houses are there in Buggaram?"—I asked.

“30 houses. 15 among us are only blacksmith houses and others do blacksmith and carpentry together.”—Rajaiah said.

“How long are these families living here?”—I asked.

“We’ve all been living here from the time of our forefathers. Cannot say how long. Beyond my great grandfather you see.”—Rajaiah replied.

“Are there any *Mudda Kammari* among these 30 houses?”—I asked.

“There is one house. Elleshwaram Laxminarayana. But he is not in the village now. He had gone to live with his son in Godavarikhani.”—Rajaiah replied.

“You will find *Mudda Kammari* in Madutla. There is *chityam*, and there is a *Mudda Kammari* house named Padakanti there. Padakanti Bakkiah and Lingaiah, two brothers.”—a blacksmith from the crowd said.

Another blacksmith said that we should go to Mallyala-Muttyampeta to talk to Rudroju house. Their grandfather Rudroju Bomalingam was a smelter. I said that we had already visited Mallyala, spoke to the blacksmiths and saw the hill and the stream where ore was collected from.

A middle aged woman named Padakanti Radha, who was watching the proceedings from the side came forward and said that Padakanti Venkatrajam of Madutla (the father of Bakkaiah and Lingaiah) is her uncle. She heard from her husband that Venkatrajam’s father did smelting. “But after Tata Steel came, all work has stopped”—Radha said.

“Can you tell me what you heard about smelting?”—I asked.

"I just heard that the furnace was around 6 feet tall [shows with her hand]. Not much more than that."—Radha said.

"We have heard that they used blowers [bellows] of skin. We have seen and used small goatskin blowers ourselves earlier for smithing."—Rajaiah said.

I asked them if they have any relatives in Dasturabad. But none of them knew where Dasturabad was and said that all their relatives are in Karimnagar area.

"We also heard that they started smelting from 4 in the morning and finished by 6 in the morning. There were 5-6 people required in smelting. The furnace they used was just like the ones used for making glass bottles."—One smith said from the crowd.

Vilasagar Santamma, an old woman, who was sitting by the door of Rajaiah said that Kodimiyala Kistaiah and Padakanti Venkatrajam might know some something because they probably had seen smelting. The former lives in Rahispally in Sarangapur and the other lives in Madutla and they may have been *Mudda Kammari*.

"They used to make soft, bendable iron, hard iron and hard steel. Those who made the iron and steel produced weapons for the Gonds. There is a sword makers in Habsipur/Ayispur named Immadi Lachhanna. Guns were made in Chinnapur. They also made round iron ball bullets. But these stopped after independence as the government asked them to stop making these. You can go and meet the gun maker Kodimiyala Rajaiah in Chinnapur."—Rajaiah said.

We thanked them for the information and leads to other places before leaving.



**INTERACTION 30****NAME:** Khatroji Rajender**AGE:** 43**DESIGNATION:** Blacksmith (migrated from Maharashtra)**VILLAGE:** Nirmal, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 1 February 2014

Khatroji Rajendar is one among a very few blacksmiths of Nirmal city who has their own workshop. Others have moved to other kinds of businesses and government jobs. We met him at the roadside smithy, which resembled a *Shisha Kammari* shack. He was working with his apprentices to repair the instruments brought to him by urban customers, all of whom paid him in cash.

I asked him how long he has been living in Nirmal. He said that his grandfather had migrated from Apparaopet in Maharashtra 40 years back and started blacksmithing in Nirmal and therefore he does not know about the older blacksmithing or steel trading tradition of the place. “There are 30 smith families in Nirmal. All of them are from Maharashtra. Old people are not here. However, there is a place in the city called Gandhinagar, where there are some old people who might know what you want [we went there later but none knew anything about steel trade or crucible steel production there either].”—Rajendar said.

I asked if he had heard anything about smelted iron or *mudda*. Rajendar said that his grandfather bought iron from Nagpur and Hyderabad. Those are same as he uses now, the lorry springs. But people in Nagpur and Hyderabad might know about smelted iron.

We thanked Rajendar for his time and to intrude during his work hours and left.

**INTERACTION 31****NAME:** Immadi Lachhanna**AGE:** 80**DESIGNATION:** Blacksmith, former swordsmith**VILLAGE:** Ayisapur/Habsipur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 2 February 2014

Immadi Lachhanna and his two sons Immadi Muttayalu and Immadi Ananda are the only blacksmiths in Ayisapur/Habsipur. Lachhanna was a former swordsmith, and after independence when weapon manufacturing was banned by the government, he had taken up blacksmithing for the farmers on a full time basis. His sons carry on that tradition now. Immadi Sudarshan, Lachhanna's second son, is in Dubai.

Lachhanna was sitting on a low bed at behind the workshop of his younger son Ananda, who was repairing ploughshares, toddy knives and other agricultural implements for his farmer clients who had gathered in his workshop.

We asked him about swordsmithing, but he said that he is not willing to talk about it since he had faced a stern warning from the government in the 1950s following which he had to quit making swords. "I do not want to be in trouble again in this age and I do not want to give you the knowledge because then you will be in trouble and tell the government that I told you how to make swords and then I will be in trouble."—Lachhanna said.

“Do you know anything about iron-smelting?”—I asked.

“I donot know anything about it. My grandfather Immadi Rajaiah might have known and seen it. My father, Muttyalu had also seen it probably. My father’s brother used to work here too. His name was Immadi Bhumaiah. His son Immadi Anjanna moved to Rahisapally and has died recently. Immadi Rajaiah and Immadi Kondaiah are from the same family. They still live in this village but they only do carpentry.”—Lachhanna said in a monologue.

“How many families of farmers did you work for?”—I asked.

“I will not say any more word. The government might catch me if I give you information.”—Lachhanna said in an irate tone.

Ananda came up from his smithy and apologised. He explained that over the years Lachhanna has become delirious and occasionally violent, so it would be better to take him indoors and let him rest. Ananda agreed to speak to us in place of his father after he had finished serving all his customers.

**INTERACTION 32****NAME:** Immadi Ananda**AGE:** 49**DESIGNATION:** Blacksmith**VILLAGE:** Ayisapur/Habsipur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 2 February 2014

“My father served 12-15 families of farmers himself. They paid him 16 *manika* (bags) of rice each.”—Ananda said.

“How many families do you and your brother serve?”—I asked.

“We serve 20 farmer houses each. The clients have increased because other smiths stopped working. We are also experts in making toddy knives so we have more clients.”—Ananda replied.

“What other implements do you make apart from agricultural implements?”—I asked.

“We make things for every community in the village. Make knives for Reddys, Kapus, Chakalis. Whenever they need knives for their kitchen or other things, they come to us and we make them. They pay us in cash. We also make:

1. *Lukkulu* (door joints)
2. *Goddalu* (axe)

3. *Para (digging stick)*4. *Chains for doors and locks*

for all these people. We also made locks earlier, but everyone purchases those from the market now. We make *Hrijan Katti* (knives for the Madiga community) for their leather tanning business. We also make waterwheels for drawing water out the wells in a bucket.”—Ananda explained.

“Who brings the raw material?”—I asked.

“The customers must bring iron and *boggu* from the market. First they come to me and asks how much iron and *boggu* they might need. Then they go to the market and purchase that and brings those to me so that I can make their implements.”—Ananda explained.

“Does the customer take back any extra charcoal or iron that may have been left after forging?”—I asked.

“Mostly they do. But if they want then they can leave those with me so that next time he will have to bring less amount.”—Ananda said.

“How many implements does a farmer need per year for cultivating his land?”—I asked.

“Depends on the size of the land. If he has 5 acres of land then he would need 2 ploughshares. They need to change the ploughshare every 3 years. They also need *khurpelu* (sickle) every year. In one year a farmer needs 25 kgs of iron to make implements to cultivate 5 acres of land. Now if you increase it to 10 acres, I think he will need 30 kgs of iron.”—Ananda explained.

“How often does these implements need repairing?”—I asked.

“Each implement needs small repairs every 15 days to a month.”—He replied.

“Do the farmers reuse old implements or they ask for new implements every year?”—I asked.

“Some of the old implements are reused. The ploughshare needs new tips attached. But mainly they ask for new things every year.”—Ananda said.

Ananda asked some of his farmer clients to give me a list of the implements they need every year. They gave me the following list for cultivating 4-5 acres of land:

1. *Khurpelu-04*
2. *Kodalu-04*
3. *Karlu-02*
4. *Godalu (small and big)-02 each*
5. *Konkallu-04*
6. *Parlu-02*
7. *Gaddaparlu-02*
8. *Mulligatta-02*

I asked them how much iron they bring every year to Ananda. They said that to prepare all these implements they need to buy in between 25 and 30 kgs of iron from Jagtial at Rs. 80 per kg.



**INTERACTION 33****NAME:** Immadi Muttyalu**AGE:** 57**DESIGNATION:** Blacksmith**VILLAGE:** Ayisapur/Habsipur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 2 February 2014

Muttyalu lives in a separate house adjacent to the house of Ananda. He has his own workshop in front of the house, which is more elaborate than the one of Ananda. Muttyalu had heard that we wanted to know about smelting and said that he can help us with whatever little knowledge he has. We thanked him and started our conversation.

“I have not seen or heard about smelting much. But I know that after they made the *mudda*, they refined it in a second *kolimi*. I have seen this work. They did that in this village. After this refining, the *mudda* was made into bars. Each bar weighed 15-20 kgs. This refining stage took place in Ayisapur but not the first stage.”—Muttyalu said.

“Who brought the *mudda* to the village do you know?”—I asked.

“The farmers brought them from those who smelted. I heard that some people made *mudda* in the village in the earlier part of the previous century. There are some *chityam* in the fields beside the Ellama temple at the edge of Ayisapur.”—He explained.

“Can you explain the refining process to us?”—I asked.

“They used small furnaces. They mixed ash with the *mudda* and put that in the furnace. The furnace was about 2 feet high [he drew a diagram in my notebook]. There were four goatskin *tittulu* operated by two people. 20 Kg of *mudda* was refined in one hour by 10 people working on the furnace and other things. Mud pipes were used to connect *tittulu* with the furnace.”—Muttyalu said.

“What kind of *boggu* did you use?”—I asked.

“The farmers bought the *boggu* from the market. The usual kind. Teak wood. The farmers took the smiths to the market to have their estimate about size and quality of the *mudda* and *boggu*. Then they bought the recommended piece of iron. Then it was 50 Kg of iron for 100 rupees. Now it is 5000 rupees or more.”—Muttyalu said.

I asked Muttyalu if all the 10 people who worked on the refining process were smiths from the village. Muttyalu said, “there are only three smiths who actually did the smelting. The others are helpers hired from the village. They helped in feeding the furnace with charcoal, hammering the *mudda* when needed and using the *tittulu*. They were given toddy in return of their help.”—Muttyalu explained.

I asked him if he knows where similar process of smelting/refining took place. He said that he knows of some places in Adilabad district. Muttyalu gave this list:

1. Mancheriala
2. Rebbana (Marathi blacksmiths)
3. Luxettipet
4. Bellampally

5. Mandamari
6. Ashuabad
7. Wankhedi (12 kms from Ashuabad, Marathi blacksmiths)

We thanked him for helping us with the information. We thanked Ananda and Lachhanna (who had by now stabilized) and left for Dharmapuri.

**INTERACTION 34****NAME:** Padakanti Venkatrajam**AGE:** 61**DESIGNATION:** *Mudda Kammari***VILLAGE:** Madutla, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 2 February 2014

We met Padakanti Venkatrajam in the courtyard of his house in Madutla. He and his brother are both village blacksmiths along with two other younger smiths of the family, all of whom have their smithy under the shade of a tree beside the dirt road, adjacent to their house. I asked him if he was a *Mudda Kammari*. He said that his family is a *Mudda Kammari* and his grandfather, as he heard from his father, probably made iron.

“Have your family always lived in Madutla?”—I asked.

“My father told us that my grandfather came here from Ippapally-Potharam in Rudrangi Mandal [of Karimnagar district, in between Vemulawada and Korutla]. He might have learnt smelting in Ippapally-Potharam and later smelted here as well. If you go to Gangapur, you can ask for Chakkalapally Buchhanna and Laxman Sankoji in Pembatla. They may know more about making *mudda*. ”—Venkatrajam said.

I told him which places we have visited so far. He recognized some of the people and said that the blacksmiths in Kalmadugu are related to him but since *Mudda Kammari* is a low

caste, his relatives in Kalmadugu are not willing to be identified as one. Therefore they are rarely in touch with the relatives in Kalmadugu.

“How many farmer houses do you serve now?”—I asked.

“There are four [smithing] *kolimis* in the village. All of us have 25 farmer houses each.”—he said.

“Do they pay you in grains or money?”—I asked.

“Grain only. 50 kg of rice and 30 kg of corn.”—Venkatrajam replied.

“What time of the year do they pay you?”—I asked.

“Two times. After two harvests. 25 kg of rice each time and 30 kg of corn once a year.”—Venkatrajam replied.

“How many implements do you have to make in return of that?”—I asked.

“As many as they farmers want. They bring us iron and *boggu* from the market and we make them whatever they want. If they have something to repair, we also do that.”—he replied.

“What kind of iron do you use?”—I asked.

“Bar iron like this [pointing to a lorry spring] from the market.”—he replied.

“How much iron does a farmer need per year?”—I asked.

“For 5 acres of land, a farmer here needs 25 kgs of iron. They bring that to me and I make implements for him.”—Venkatrajam said.

“Kuchanapally Bakkanna and Potanna of Dasturabad are our relatives from my wife’s side. Her house is in Dasturabad.”—Venkatrajam added.

He asked us to go and visit Godegondem, where, as he said, there is a large deposit of slag heap, spanning across an agricultural field. “Follow this road to Ramasagar and you will find it. It is just 5 kms away.”—said Venkatrajam.

We thanked him for his help and set out for Godegondem.

**INTERACTION 35****NAME:** Malkapuram Laxmirajam**AGE:** 75**DESIGNATION:** Toddy Tapper**VILLAGE:** Godegondem, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/Hindi**DATE:** 2 February 2014

We stopped at the small village of Godegondem to ask about the slag heap. Malkapuram Laxmirajam was coming back home from his work. He volunteered to take us to the slag scatter. We had the following discussion on our way.

“Where the *chityam* is in the fields out there, there used to be a village. A village of smelters who made iron. They were outsiders. Some of them might be from Madutla, who made or bought iron from them. The village is abandoned 60 years back. But there was a large hill of *chityam* which we called *Chityalapenta* (heap of slag). I saw them doing it when I was small and we used to play with the *tittulu* after they left. Now it is just the field and the mango grove.”—Laxmirajam said.

“Do you know where the *Mudda Kammari* went after leaving the village?”—I asked.

“No. We do not know anything about them. They just vanished.”—Laxmirajam said.



We passed an old and dilapidated mansion. I asked Laxmirajam about it. He said that the mansion belonged to the Juwarda Narasimharao, who was the landlord of the abandoned village. the house is abandoned now sine the family had left the village a long time back. Sometimes Jayanandaraao, the brother of Narasimharao visits the mansion.

On our way we met a few farmers who were digging a fresh canal to direct water in their fields. Laxmirajam explained to them why we were there and asked one of the to show us the slag area before he hurried off to the village.

**INTERACTION 36****NAME:** Nagesh Chauhan**AGE:** 25**DESIGNATION:** *Shisha Kammari***VILLAGE:** Jagtial, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 15 April 2014

We arrived at Nagesh's workshop across the road from the Old Bus station in Jagtial at 11:00 am. I noticed that the open yard between the road and the workshop was completely empty and Nagesh was squatting inside his smithy and chatting casually with his wife and Arjun (his nephew, and apprentice). When I visited the workshop in January, it was buzzing with customers in early afternoon and Nagesh, his brother along with Arjun and their wives were hard at work. Since they were not busy, I took this opportunity to speak to them casually while still being focussed on the nature of blacksmithing. Nagesh and Arjun recognized me and asked me when I had returned and where I was staying. Although we started speaking in Hindi, I switched to English and asked Mahesh to interpret my questions in Telugu to Nagesh and Arjun. This was necessary to bring him in the conversation and see how he performed as an interpreter. I asked questions about his work that I had already asked in January. Nagesh did not remember the details of the interaction in January and therefore was happy to answer all my questions all over again.

This helped me to reconfirm the data collected in January apart from giving Mahesh a decent first day's practice.

Nagesh asked me if I would like to accompany him to his village in July. He said that he will introduce me to other itinerant smiths in his ancestral village in Adilabad district; some of them are very senior blacksmiths and can help in my research with more information. I asked him if he knows anything about iron smelting. Mahesh found it hard to translate it into Telugu, not being acquainted with the local terms about smelting. When I asked in Hindi, Nagesh replied that he had not heard about it and he had always seen his father and grandfather forge scrap iron. He mentioned that they used to bring small balls of iron from the market and forge them together into a large lump of iron and made tools from it. I am not sure if this was an indication of using iron bloom. Nagesh said that he did not know where the merchants bought these iron balls from. He had never asked. He said that his uncle, who was a senior smith, lives in Godavarikhani where he has his smithy. He might know about these. He called him immediately in order to help me and asked about iron smelting. After a fifteen minute long phone conversation Nagesh said that his uncle knows that there were communities who used to smelt iron from soil. However, they do not exist anymore and he does not know their whereabouts. Nagesh said that his uncle was also sceptical about us asking these strange questions and had asked him to see our identification. He was satisfied after I showed him my Uni card and apologized. He explained that since he is not much educated and since the elections are close at hand, he was worried about any enquiry from the government which might cause unnecessary trouble to him and his business. After a 45 minute long conversation we took our leave from Nagesh, his wife and Arjun. As we were about to leave, a local charcoal

dealer delivered two huge sacks of charcoal to the workshop and Nagesh's wife paid him some money.

We thanked them and left for Dharmapuri.

**INTERACTION 37****NAME:** Ravidas Chauhan**AGE:** 32**DESIGNATION:** *Shisha Kamhari***VILLAGE:** Jagtial, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 15 April 2014

When we parked near the smithy, we saw Ravidas Chauhan, the owner of the smithy, repairing his motorbike, with his four year old son watching his father work. First Ravi thought that we were his customers and came up to talk unfazed. However, as Mahesh hesitantly explained the purpose of our visit and a brief outline of my research (which, at this point, was very strange and unclear to Mahesh himself), Ravi grew more sceptical. He asked us to come back later when he would be at work. After a bit more of explaining and showing that I knew at least some things about the *Shisha Kamhari* community and had already visited Nagesh in Jagtial, Ravi agreed to talk. We all sat in the shade of his tent near his smithy and started talking informally about Ravi and his work. As the conversation proceeded, Ravi's scepticism faded and he grew friendlier.

The workshop was located in front of the tent and faced south-west to the direction of the highway. The *Shisha Kamhari* workshops, in the instances that I have seen, are always situated near major road junctions or adjacent to major roads and are always oriented to

face the roads for practical reasons. This is in contrast to the *Viswakarma* blacksmiths, whose workshops are always oriented towards east—the direction of rising sun, irrespective of the location of nearby roads or alleyways.

Behind the smithy of Ravi, I could see a TV at the far end of the tent, and a few chairs to sit on. There was a cooking hearth and some racks full of cooking and eating utensils of steel. There also were a couple of makeshift beds. This long tent seemed to serve as their residence cum workshop.

Ravi belongs to a family of blacksmiths (*Shisha Kammaris*), which have been in fulltime blacksmithing for generations. He is from the Tribal Lombadi community and his ancestral village is located near Utnoor in Adilabad district (same area as Nagesh). He has been born and brought up in this tent. His grandfather had migrated from his ancestral village and established the smithy and this workshop and this tent shelter and their family have been living and working here since then.

I asked him how many hours a day does he work. In reply he said that he is a “24 hour blacksmith” and if asked then he will work for 24 hours every single day of the year. However, work is regulated by demand. Ravi said that although he has a lot of farmer clients, he does not take any specific orders from them and there is no custom regulated oral contract between him and his farmer clients. He manufactures agricultural implements prior to the start of annual agricultural season in monsoon irrespective of the orders. The farmers come to his workshop here or his shop in the village markets to purchase these implements. Although he moves from one village market to the other every week, most of his customers come to the Angadi Bazar market in Jagtial to purchase the implements from him.

The busiest period of blacksmithing is just before the monsoon in the “month of seven” (July). I asked him if he forged the agricultural implements a month or so in advance before the peak season had set in. He said that he would manufacture implements every day during this time and work more hours rather than forging these in advance. There is a risk in forging a lot of implements in advance because the demand could fluctuate every season depending on the nature of monsoon.

I asked him if his business is affected by use of field tractors and other machines in agriculture. Ravi said that it does not concern him because people would still need iron-implements for their household use, and his products are cheaper and better than those made in factories. I was impressed his optimism, something that lacked in all interactions I had with the rural *Kammaris* and *Mudda Kammaris*.

Ravi is helped in his work by his wife. Women are allowed to work in the smithy and they can also become a blacksmith if they so desired. I asked him what he thinks is the difference between him and the *Viswakarma* blacksmiths in the villages that he travels to sell his implements. He said that he is not aware of any other blacksmith community apart from his own.

I asked him if the demand of different types of tools escalate based on season. He said that at present (in summer), he primarily manufactures *Godalu* (axe), *Wangodalu* (another kind of axe), *Katti* (knife) etc. However, during monsoon, the demands for agricultural implements such as *Khurpelu*, *Karru*, *Nagalu*, *Konkalu* etc. increases.

I asked Ravi where he purchases the raw materials from. He said that he purchases scrap iron and charcoal from the market in Jagtial. He has to purchase these and the clients are not expected to provide raw materials. After that he pointed to the meat



chopping blade he was forging. He explained that this was a special order from a mutton shop nearby and it has to be forged with special and stronger blade to ensure sharpness. In this case he had asked his clients to provide the scrap for the blade. I asked him if he knew what kind of scrap this was and where his clients bought this from. He said that he does not know.

Ravi said that his smithy is actually very old. His grandfather had established it and the anvils and most of the other heavy tools such as the hammers belonged to his grandfathers' time. He said that when there was not much forging to do, he would travel to the village and town markets like Metpally, Korutla, Jagtial, Dharmapuri etc. with his manufactures to sell them there. He would travel by bus and other forms of public transport and the maximum distance he travels is not more than thirty kilometres. In all these markets he only accepts cash as payment. No crops is accepted because it is not always the harvest season and it is difficult to carry crops back home.

Although there is no custom regulated oral contracts between his customers and him, there are a few customers who always come to him. Their family had been customers for last two generations and feels obligated to purchase implements or get repairs done from his workshop. Finally, seeing Mahesh asking his permission to smoke, Ravi added that he is a Christian and being a Christian is great. He emphasized that being a Christian, he is a teetotaller. I asked him about his family. He said that apart from his wife, has two sons and one daughter. While his elder son helps him at the smithy, his daughter is going to school.

At this point the conversation was interrupted as Ravi saw a customer who was passing by on a tractor. He shouted at him for not paying his dues. The customer stopped near the workshop and after a small heated exchange the customer left paying a small amount

to Ravi, who was visibly infuriated by this. At this point I decided that it was a time to leave and bade him farewell after thanking him for his help.

**INTERACTION 38****NAME:** Katta Sudarshan**AGE:** 60**DESIGNATION:** Blacksmith**VILLAGE:** Rebbanapally, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 April 2014

Katta Hanumanlu, a smith in his mid-sixties was curiously observing us from front door of his house, where his very modest and unshaded smithy was located. When we explained that we would want to speak to him about blacksmithing and blacksmith community in the village, he asked if we were from the government. We assured him we were not from the government and were not journalists either. He was still sceptical and said that we better speak to his brother Katta Sudarshan, who was also a blacksmith and is more educated and articulate. Sudarshan lives in the next house and when Hanumanlu escorted us and introduced us to him he was reading a newspaper sitting in his front porch. Mahesh explained the purpose of our visit and he seemed to understand it and agreed to speak to us about his work and the blacksmith community in the village in general. He offered to talk at his smithy, which was located in a separate enclosed space adjacent to the house, separated from the front courtyard of the house by a brick wall. The smithy had a different entryway than the house.

The organization of space in Sudarshan's smithy was more elaborate than Hanumanlu's. The smithy was under the shade of a tent and there was a well-established hearth, a permanent and firmly established fan bellow and ran by a bicycle wheel, an old anvil and a scatter of semi-finished sickles. Everything in the smithy gave me the impression that it is more frequently used than Hanumanlu's.

Sudarshan belongs to a *Viswakarma* blacksmith family with a long tradition of blacksmithing. The present smithy was established by his father. He primarily forges for ten families of farmers, who have been coming to his family for a long time. Earlier there were more families, but due to mechanization of agriculture, the number of client families have dropped sharply. Sudarshan said that he only accepts payment in kind from his farmer clients. However, if he has to produce any tool for the villagers who are not from the farming community, he takes payment in cash. He pointed at a few semi-finished sickles lying around at the back of the working area and said that he is forging them for non-farmer clients and will be getting paid in cash.

At this point in conversation I asked him if he belonged to the *Viswakarma* blacksmith community. He confirmed this. I asked if he had heard about Mudda Kamhari community and whether they were a part of the *Viswakarma* caste as well. He said that he had heard about the Mudda Kamharis and there are a few of them could be found on the roadside of Gandhi Chowk in Luxettipet and beside the gas storage in Dandapelly. Sudarshan also added that they did not belong to the *Viswakarma* caste and were actually a lower caste. I realised that he was actually talking about the *Shisha Kammaris* and asked him more about what he knows about them. Sudarshan said that the Mudda Kammaris do not make items for the farmers; they just produce for the market. He was saying that with a visible contempt about the community. I asked him if he was talking about the *Shisha Kammaris*.

At this he realised his mistake and corrected himself and said that he was indeed talking about the *Shisha Kammaris*. He does not have any idea about where the *Mudda Kammaris* live and what they actually did. However, he had heard about them from his parents.

Katta Hanumanlu, who has been a silent bystander until now, nodding to what his brother was saying, came in the conversation at this point. He said that 5-6 families of farmers come to him every year. Each of them pays 9 qunchas or 75 Kg. of rice to him.

I intended to ask both of them about how they learnt blacksmithing and since when they have been working as blacksmiths. Sudarshan replied that he learnt the work from his father and has been working as a blacksmith since 1977. But he does not work full time, unless it is required to do so if he has more orders at the same time. Hanumanlu did not respond to the question and just nodded to approve what his brother had said.

The peak season of work is in between mid-July till end of August when farmers need implements prior to the start of annual agricultural season. In summer, when there is less work, Sudarshan produces small household items if anyone places an order. These items included kitchen knives (*katti*), sickles etc.

Sudarshan's son is a carpenter. He added that apart from blacksmiths, *Viswabrahmins* constitute of four other craft groups. These are (he struggled while naming them), goldsmiths, carpenters, bronze-smiths and sculptors. Blacksmiths can take up carpentry and a carpenter can become a blacksmith or work on both at the same time. However, blacksmiths and carpenters are not allowed to become goldsmiths and bronze-smiths. At this point his son has come in. After Sudarshan introduced me to him, I asked if he has same set of farmer families as clients in carpentry, for whom his father smiths. He

answered in the affirmative and said that they would pay him and his father separately as family carpenter and blacksmith, even though they are from the same family and live in the same house.

Sudarshan, continuing from the discussion about composition and relationship with other communities in the *Viswakarma*, added that although intermarriage is theoretically allowed in between all of these five groups, the bronze-smiths and goldsmiths would not normally allow their children to marry someone from the blacksmith and carpenter families.

I asked Sudarshan about the implements that his farmer clients want him to produce every year. He said that most of the clients would reuse most of their agricultural tools with some minor repairs. The farmers only order for new tools when repairs are no further possible. Each farmer needs 10 agricultural tools every year on an average. Most important of them are:

1. *Karlu*
2. *Khurpelu*
3. *Chakralu*
4. *Parlu*
5. *Kodwalu*
6. *Jambu*

I asked him which deities he worships as a blacksmith. Sudarshan said that he worships *Brahmangaru* (Veera Brahmendra Swami). He and other blacksmiths also worships *Ammavaru* (female deity meaning “mother”, probably a consort of *Brahmangaru*). I asked him if he knew about the cult of *Mamayee*. He said that *Ammayee* and *Mamayee* are

variants of *Ammavaru*. I asked him if there were any temples to *Brahmangaru* and *Ammavaru* nearby. Sudarshan said that there was none. However, he knows that there are temples in Kalvala and Ibrahimpatnam. When he heard that I had been there in 2010 and 2011, he expressed his astonishment about the fact that I had travelled so much to study about blacksmiths. He said that all five families of blacksmiths in the village, all of whom are related to him and share the same *inti-peru* (origin name, “Katta” in this case), are suffering due to loss of work. Over a cup of tea that was kindly offered to us, Sudarshan signed off saying the craft is being lost, the knowledge is being lost. I told him that this is the reason why I am trying to store their knowledge for future generations as a part of my research.

After thanking Sudarshan and recording his smithy in sketch and photograph, we left Rebbanapalli and drove towards Gudem.



**INTERACTION 39****NAME:** Ramapally Venkataiah**AGE:** 57**DESIGNATION:** Blacksmith**VILLAGE:** Gudem, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 April 2014

In 2010, we found slag heaps in Gudem. But when we reached the village and showed them a piece of slag (that I always carry to show people and ask for possible slag heaps in the vicinity), no one recognized it and said there is nothing like that lying in and around the village. We asked for blacksmiths and were shown to the house of Rampally Venkataiah. Venkataiah's son was outside and after we had explained him about my research, he sent a kid to fetch for his father. Unlike other villages, his son seemed not sceptical at all and asked for some chairs to be brought out and placed under the shade of the house opposite to his. As we waited for Venkataiah, a small crowd of curious villagers, most of them neighbours and clients of Venkataiah, started gathering and asking questions to Mahesh. Venkataiah's son had apparently thought that we were reporters and writing a positive report about them would help them apply for loans from the government. Mahesh tried his best to dispel this misconception and finally they seemed to have understood, yet not quite believe in the fact that I am doing this research for my studies

and not for any government or newspaper. I am sure they found us really odd for studying something as mundane as blacksmithing.

After Venkatiah came out of his house to the place where we were waiting, Mahesh and his son explained him the purpose of our visit and the nature of my research. He agreed to speak to us about his work.

Venkatiah is a blacksmith and a carpenter. He is originally from a blacksmith family and had learnt blacksmithing from his father and had later adopted carpentry. His son was also a blacksmith cum carpenter. Venkatiah started blacksmithing when he was 20 years old. Since then he has been both repairing old tools and forging new implements. His is the only blacksmith family in this village and therefore he has to produce for all the farmer families in the village. I asked him how many families he normally produces for every year. Venkatiah said that there are 100 farmer families in this village and he produces for all of them.

I asked him if he received payment only in kind. Venkatiah said that the farmers prefer to pay cash to him. They used to pay him once a year in crop, but they stopped doing so six years back. I asked him if he would rather accept payment in kind. He said that receiving payment in crops is not much profitable and feasible in case of his village because most of his clients are cotton farmers. If he had received payment in cotton ball, he would have to put effort and spend money in extracting cotton from the bolls and selling them in the market to get money to purchase food grains. Also he added that farmers in the village are not willing to give up this cash crop and prefer to pay in cash instead. Therefore, in this village Venkatiah's clients pay him per item forged or repaired unlike most other villages where payment comes in kind, mostly once, but in some cases, twice a year.

Venkatiah said that the farmers are required to provide scrap iron and charcoal for their implements to be forged. I asked him about the difference between him and the *Shisha Kammaris*. He seemed a little annoyed about being compared with the *Shisha Kammaris*. Venkatiah emphasized that he was “*Brahmangaru Kammaris*” and the *Shisha Kammaris* are mere roadside blacksmiths.

I asked him about *Mudda Kammaris*. He was visibly annoyed again. He said strongly that *Viswabrahmins* and *Mudda Kammaris* are very different. *Mudda Kammaris* were a different caste and were lower than the *Viswabrahmins*. But somehow they started proclaiming them as a part of his caste. Although *Viswabrahmins*, *Mudda Kammaris* and *Shisha Kammaris* work on iron, they are actually very different and distinct from each other.

I showed him the slag and asked him if he recognized it. He said that he gets thinner *chityams* (slag) every day while working at his hearth; however this is much thicker and hence must be from a bigger furnace. I explained that this is from smelting. He did not want to listen and said that the only place one can get *Mudda* (or iron lump) is from those made in the factories or from the scrap metal market. He was not willing to listen or talk about smelting and the *Mudda Kammaris*.

Suddenly the conversation went in a tangent as Venkatiah changed the subject of discussion. He said that his sons are trained as blacksmiths. However, he does not know if his grandsons will take the profession up as well.

I saw that he was adamantly refusing to talk about anything related to other communities of blacksmiths and Mahesh had already exhausted his repertoire of round-about ways of framing the same question. In order to settle everyone down, I requested Venkatiah to

show me his smithy and asked his permission to take pictures and make sketches of it. I explained that this would be an important aspect of my research.

Venkatiah's smithy was situated a couple of hundred meters from his house under the shed of a tree in a grazing field, near the cultivation. It appeared from the scatter of wooden planks and chipped portions of wood that the same place also serves as his carpentry. The smithy faced north, unlike most other smithies. When asked, Venkatiah said that the smithy was always here at the same position and his father had used the same smithy. After snapping some pictures and taking a sketch of the smithy and thanking Venkatiah for talking to us about his work, we left Gudem for Nambala.

**INTERACTION 40****NAME:** Rangu Mogili**AGE:** 40**DESIGNATION:** Blacksmith**VILLAGE:** Kaspeta, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 April 2014

Rangu Mogili, the only practicing smith in the village lives on the road leading into the village and we stopped by his smithy to enquire if he was at home and would like to talk. Rangu's east-facing smithy is situated adjacent to the road, beside a drainage canal in the front yard outside the door of his house. The hearth of his smithy is curtained off from the bellow area by a 20 inch tall brick built but clay smeared furnace wall. However, it was evident that his smithy is presently not in use. The bellow was missing from the set up and the hearth side opening of the tuyere was sealed off with mud and dry leaves.

Seeing us looking at his smithy, Rangu had come out of his house and enquired about the purpose of our visit. After Mahesh had explained him, he readily agreed to talk to us and invited us inside his house and offered us seats in the inner courtyard of his house.

Rangu is from a family of blacksmiths and he had learnt blacksmithing from his father. He has been working as a blacksmith from less than 20 years of age. He confirmed that there are two blacksmith families in the village, however he is the only working blacksmith.

Rangu said that he only forges for 50 farmer families in the village and would only accept payment in crop. The main season of work is during the monsoon. He does not work as blacksmith during other time of the year. At present, since this is not the season yet, he works as a daily wage labourer in Dharmapuri and other towns. He does not, and will not produce implements to sell in the market. His smithy only functions for five months every year i.e., from June to October. For his work, each of his client family pays him 6 qunchas of grain. The remuneration is normally paid once a year, after the first harvest season in January. Against this payment, he is required to manufacture as many number of agricultural equipment his clients would ask for. He also repairs these implements for the clients and if any client asks him to perform some short term repair outside these five months, he will do that as well.

Rangu said that he worships *Brahmangaru* and that Veera Brahmendra Swami stands for all the gods that blacksmiths and other groups of the *Viswakarma* community worships. In *Viswakarma*, there are five (he sometimes said six), different groups of craftspeople.

These are:

1. Goldsmith—*Auslolu*
2. Carpenters—*Wadlolu*
3. Blacksmiths—*Kammaralu*
4. Bronze-smiths—*Kancharalu*
5. Sculptors—*Kaushalu/Shilpi*

Among these groups, intermarriage is allowed between blacksmiths, goldsmiths and carpenters. However, none of these three groups are allowed to marry bronze-smiths. I asked him why this was the case. He said that he does not know the exact reason. This has been the tradition and he heard it from the older generation and is strictly following it.

I asked Rangu about the *Shisha Kammaris*. He said, with contempt, that they are lower caste and can never be the part of *Viswakarma*. They sell iron implements in the market and do not have any connection with the village organization. Rangu does not however, know about the *Mudda Kammaris*. In the meantime, Lachhaiah, a village washerman (*rajak*) (who was standing at the doorway and listening to the conversation intently) commented that Rangu is actually a *Mudda Kamhari*. Rangu vehemently denied this and re-emphasized that he does not know who the *Mudda Kammaris* were. At this Lachhaiah said that there are only two types of blacksmiths, first, the *Mudda Kammaris* and second the *Shisha Kammaris*. I wanted to talk to Lachhaiah more about his perception, but Mogili was getting annoyed by his presence. After Lachhaiah had stopped talking, Rangu said that he does not know anything about smelting or *chityam*. He has never seen this type of slag in the village or nearby.

I asked Rangu why he normally does not work in blacksmithing except these five months. He said that outside the season, there is no one who can help him with operating the bellows. During the season, the farmer clients operate the bellow for him and this is a great help. the farmers also bring raw materials such as scrap and charcoal from the market. However (unlike in some other villages), if they bring excess raw material, they take the excess back after the forging is complete. A farmer requires 10-15 kgs of scrap iron per season on an average.

I asked him how he uses the crop that he receives. Rangu said that, after keeping sufficient amount for feeding the family, he would sell the surplus amount in the nearby market and get money to purchase food and other necessary items. I asked him if he produces any domestic tools like knives or door hinges etc. He said that if a house owner orders for them, he will make them and sell them for cash.



At the end of the conversation we thanked Rangu for talking to us and helping in my research. He permitted me to sketch his smithy and take some photographs. After thanking him, and acknowledging a small crowd that had gathered outside the house by then, we left for Dharmapuri to say hi to Brice at the end of the long day in the field.

**INTERACTION 41****NAME:** Yemnuri Bodanna & Kuchanapally Rajaram**AGE:** Above 70**DESIGNATION:** *Mudda Kamhari***VILLAGE:** Dasturabad, Adilabad, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 25 April 2014

Yemnuri Bodanna is almost 85 and is handicapped since birth on his right leg. He has seen smelting since his childhood and participated in one of the last days of smelting in Dasturabad, in his early youth. Because of a defective right leg, he was always given work around the furnace which did not involve much movement, so he has good knowledge and memory about how smelting was organized and how the furnace was constructed. His knowledge about charcoal making and ore collection is however, based on what he had heard from his fellow smelters. Bodanna has assumed the position of the spokesperson of the community since my first visit. When I visited first in January by myself, everyone wanted to talk at the same time creating a chaos of information flying around. But since then, as they understood how serious I was about collecting the knowledge of smelting, the Mudda Kammaris of Dasturabad seemed to have put Bodanna forward as their spokesperson as he is the eldest and knows more than anyone else in the village.

Bodanna hurried in the house after fifteen minutes and started to recollect about smelting with a gentle smile on his face. He said he always liked the days when they used to smelt in Dasturabad. This is their original livelihood, but now they have unfortunately being forced into blacksmithing.

Bodanna started talking about collection of *wuske* or iron sand. He said that during the rainy season, black *wuske* gets stagnant and deposited in the beds of seasonal hill streams at different spots. These spots were well known to the smelters and they used to venture into the forest in the foothills and collect the sand from these places after a shower and carried them in the village. After *wuske* was brought in the village, it was further refined by washing them in flowing water to get rid of the impurities like regular sand particles.

Earlier there were large heaps of slag in the village. That was the amount of iron they used to make. But now people from his community do not know how to make iron. They do not know how to build a *kolimi* or furnace. He warned that Mudda Kammaris in and around Dasturabad will only give false assurances about knowing how to smelt. They actually do not know anything. He said that I should be really careful about who is giving me the information and who I am talking to.

I asked him about the sites within Gangapur forest. He said that Dasturabad was the centre of smelting. The *chityam* in the forest are very old and none knows anything about when smelting was done there. But they were the great ancestors of Mudda Kammaris of Dasturabad. Bodanna said that those *chityam* in the forest were made in a small furnace, different from the ones he used in Dasturabad. Then he emphasized again that Dasturabad was the centre of smelting and said that even though we do not see much

slag now, there were heaps of slag in the village which are thrown in the adjacent jungle while building houses as the population increased.

I asked him what was the fundamental difference between normal Viswakarma Kammaris and the Mudda Kammaris, if there were any. He said that they are not fundamentally different. Both of these groups are part of the same community of blacksmiths and hence the part of Viswakarma “caste”. However, because they make iron bloom or *mudda* from ore, they are called Mudda Kammaris. Bodanna regretted that other communities like the Shisha Kammaris and Muslims are taking up blacksmithing at present and the monopoly of Viswakarma caste over blacksmithing is slowly eroding away.

In the meantime Kuchanapally Rajaram had come and joined the conversation. Rajaram was another Mudda Kammari, who had seen smelting in his childhood. He is a lot younger than Bodanna, but has memory of smelting to some extent. He was the one who had assured me that he and Bodanna will organize a smelting attempt if I was willing to bear the costs.

I asked them to tell me more about the Viswakarma community and if there is any hierarchy between different groups of the community. Both Rajaram and Bodanna emphasized that there is no hierarchy or high-low among different crafts group within the Viswakarma community. They are all equal and same. They are like five equal brothers, but of course, the blacksmiths are the eldest of the lot. The five brothers are:

Eldest: *Kammari* (Blacksmiths)

2<sup>nd</sup>: *Wadlolu* (Carpenters)

3<sup>rd</sup>: *Shilpi* (Sculptors)

4<sup>th</sup>: *Kancharalu* (Bronze smiths)

5<sup>th</sup>: *Auslolu* (Goldsmiths and silversmiths)

Rajaram added that there are 40 Mudda Kammari families in Dasturabad, and all of them are integral part of the Kammaris.

I wanted to know more about smelting, so I asked Bodanna and Rajaram about charcoal preparation process. Bodanna said that three types of wood were required—*Sandra-kattu*, *Korishe-kattu* and *Tiruwani-kattu*. The younger *mudda kammari* apprenticing would be supervised for this process by the senior *mudda kammari*. These types of wood were collected by the apprentices and then these three types of wood from the forest, they used to mix them together and burn them in the forest. A space was cleared in the forest where they dumped these three types of wood together and covered the mound with dry leaves and sand. Then fire was lit at the bottom of the dump and it was left to burn for 2-3 days, depending on how much timber was collected. Since the smelters had to ensure that no air escapes from the dump while it burns slowly, the dump of wood and dry leaves and grasses was covered with sand. Finally, the fire was doused by putting more sand in the dump and charcoal was taken out. There was no separate group for making charcoal. The smelters went to the forest and prepared charcoal themselves when they needed to. Bodanna and Rajaram regretted that these woods are only available deep in the forest and they were charged exorbitant amounts by the forest department to get these woods. This, along with other factors, contributed towards gradual decline of smelting in Dasturabad. Earlier there was jungle nearby the village, but now jungle has receded back due to continuous smelting.

I asked them how much iron one furnace produced. Bodanna said that the *mudda* was very heavy and it was not possible for one person to lift it. He, however, does not know about the exact weight. Rajaram concurred. Bodanna said that smelting would start late at night and a bloom would be obtained after 6-8 hours of constant bellowing. There were two furnaces at work in Dasturabad. The furnaces were 5-6 feet tall and one has to climb a ladder or a tall stool to add charge from the mouth of the furnace. A total of 18-20 people were needed to work these two furnaces and both these furnaces worked at the same time. The distribution of labour in between these two furnaces was not rigid and people shuffled between both the furnaces whenever they were needed to. But generally the apprentices or the comparatively younger *mudda kammari* worked the bellows and put fresh charges of charcoal and ore into the furnace under the supervision of senior *mudda kammari*, the senior most of them supervised the entire process in two furnaces. However, Bodanna and Rajaram insisted that there was no competition between them. There were two hand driven, buffalo skin bag bellows per furnace and the bellow-men had to change shift every half an hour as bellowing was exhausting and they needed to rest before starting to work the bellows again. Other important responsibilities during smelting were—charging the furnace at intervals with ore and charcoal, ensuring enough ore and charcoal were available etc. It was a complete team-work. Smelting would not be successful otherwise. It is very different from blacksmithing! The smelters used to stay in the smelting area until smelting was complete. They just took turns to come home to eat. No children were allowed in the smelting area. Women are completely prohibited and are not involved in any part of the process. The furnace and the tuyeres were made by the smelters themselves. Soil was collected from nearby stream beds and it is the same soil that the *kummari* (potters) use for making pots.

I asked Bodanna and Rajaram to describe how the furnace looked. Initially they found it hard to explain it in words. They were keener on drawing a sketch on the ground. After they had sketched on the ground with a stick, I copied it in my notebook. Then for a better understanding I asked them to explain using two cylindrical empty kerosene cans lying nearby.

Bodanna, being more experienced did most of the explanation and Rajaram filled in where Bodanna asked him to. What was explained is as follows:

The hole in the furnace through which slag was drained was situated exactly opposite to the tuyere through which draft was charged with twin bellows. The hole for slag was kept open and slag flowed out all the time as soon as it formed. When the mouth of the tuyere through which draft was sent, got blocked, it was an indication that smelting has been successful and a bloom has formed inside. The smelters then broke a part of the base of the furnace to take the bloom out and refined it by repeatedly hammering the spongy bloom to get rid of additional slag. The bloom was further refined in a small smithing hearth set up near the smelting area. After each smelt, furnaces bases were repaired, a furnace was hardly completely dismantled.

A furnace as three parts—the base, which was set up on three big pieces of stone kept at a triangle, just like regular cooking hearths. Like the cooking hearths, a smelting furnace had an earthen body founded on the stone base. The gaps between three stones were filled by adding mud, the same as the earthen body. And like a cooking hearth, a furnace has a flowering mouth which is called *nade*-- same as a cooking hearth.

Smelting was seasonal. It was done only during monsoon. The amount of smelting depended on the availability of *wuske*. For collecting good quality *wuske*, it has to be



raining really hard. Without a good monsoon smelting suffered. After the bloom was refined, they divided it into several parts and distributed it among those who participated in smelting. The farmers from the village would come to purchase the bloom and they will have to pay a *Thattedu* or 2 paise minimum for a part of the bloom. However, when these same farmers will bring the same bloom to be forged into implements, they will pay in crops as was and is customary. Since a lot of iron was produced every monsoon, the smelters did not have a fixed price for the blooms. They gave them away to the *Sahukars* or middlemen in whatever price they wanted.

I asked Bodanna and Rajaram about the deities they worship. They said that once a year they worship *Mahisamman* (buffalo goddess). They sacrifice a goat then. *Mahisamman* is the protector deity of Dasturabad and there is a temple in the village horizon dedicated to her. The main festival of the goddess coincides with *Ugadi* or New Year in Telugu calendar (March). Veera Brahmendra Swamy is the primary deity for the Viswakarma community and the Mudda Kammaris of Dasturabad also worships him.

**INTERACTION 42****NAME:** Pulluri Sankaraiah**AGE:** 52**DESIGNATION:** Blacksmith**VILLAGE:** Rangasagara, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 28 April 2014

While driving through the village of Rangasagara, we saw a blacksmith's working area and stopped to enquire. It turned out that the smithy and the adjacent house belongs to Pulluri Sankariah, the senior among two blacksmiths in the village. A child ran in to inform Sankariah that we would like to speak to him about his work. Sankariah greeted us in the courtyard of his mud and thatch house. He said that a few years back some people, including foreigners, came in the village and collected *chityam*. However, he was then overwhelmed by their presence and had refused an interview. Mahesh explained the purpose of our visit in brief and he agreed to speak to us.

"My family moved to Rangasagara sixty years back from Muttyampeta, near Siricilla in Karimnagar district. There was no work there. So my father moved here with his family"—recalled Sankariah. I asked him if he knew why there was not enough work for the blacksmiths back then. He said that he did not know.

Sankariah is from a traditional blacksmith family and has been working as a village blacksmith at Rangasagara for last 40 years. He also works as a carpenter; however, his primary skill is in blacksmithing. There is another carpenter-blacksmith family in the village. Sankariah has four sons, all of whom are working as blacksmiths cum carpenters in different villages.

“I work every day. But the main season is during the pre-monsoon months between May and July. [During this time] The farmers come and give orders. Both blacksmiths have 50 families of farmers each. Both of us (these two families) have been doing this for last sixty years. We make all the agricultural implements and do necessary repairs as well. The farmers still come to us because fortunately machines are not used here yet much.”— Sankariah explained. He gets 1 quintal of rice per family of farmers as an yearly remuneration. “If the one farmer family has brothers and they all live in the same house, they only have to pay 1 quintal of rice together for the whole family. But if the brothers live separately, then they have to pay a quintal each.” The remuneration is normally paid in the month of December, after the winter harvest. Among the 50 quintals of rice that he receives every year, he keeps the amount of rice his family requires, and sells the surplus to the middlemen or *Sahukars*, who visit the village from nearby Kandlapally village after the harvest season each year. Each quintal of rice is sold in Rs. 1200-1500. “We inform the *Sahukars*, when we have surplus grains. They send their people to come and collect these from us. We normally get money from the *Sahukars* within a month, after they have sold the grain in the market. The farmers pay us in raw harvest, and we have to take it to a nearby rice mill to de-husk and obtain rice.”

I asked him if there is any pre-agreed number of implements that he has to manufacture every year for each farmer family. He said that there is no limit. He will have to

manufacture and repair as many implement as the farmer asks for against the fixed payment of 1 quintal of rice. “But in general, I have to manufacture not more than 2-3 new items every year for each farmer, as they mostly use their old items from previous years. I just repair them if needed.” I asked him if he produces for the market. “I am not those [Shisha Kammaris] smiths”, he retorted.

I asked him about carpentry. He said, “those families who need me as a blacksmith, normally comes to me if they need a carpenter. Not all the families come though.”

“Do these families pay you separately for carpentry?” – I asked.

“Yes, the payment for carpentry is separate from the one for blacksmithing”—he said.

“So one farmer who needs you as a blacksmith and a carpenter will pay you twice?” –I enquired.

“Yes, in that case, the farmer will pay me 1 quintal of grain each for blacksmithing and for carpentry.”-- he explained.

Then I asked him about the community of blacksmiths. Sankariah said that he belongs to the *Viswabrahmin* community. There are five groups in the community:

1. *Kammaralu* (blacksmiths)
2. *Wadlolu* (carpenters)
3. *Silpi* (sculptors)
4. *Auslolu* (goldsmiths)
5. *Kancharalu* (bronze-smiths)

“Are there any differences or hierarchies among these five groups?” –I asked.

Sankariah did not understand the question and Mahesh asked me to rephrase it. I asked whether these five groups are considered as brothers. He replied affirmatively. I asked which group is considered the eldest. He replied, “they are all the same but the *Kammaralus* are the elder brothers and the *Auslolu* are the youngest among the brothers”. I asked which of the groups are in the middle? At this he gave me a hierarchy of “brothers”. This was:

1. *Kammaralu*
2. *Wadlolu*
3. *Kancharalu*
4. *Silpi*
5. *Auslolu*

I asked him what the source of his knowledge was. “It is written in *Kalajnanam* [a book of prophecies said to have composed by Veera Brahmendra Swamy in sixteenth-seventeenth centuries]—Sankariah said. I asked him if these groups are allowed to intermarry, and if the members of one group can take up the profession of another. He said that there is no taboo about intermarriage between these five groups. Only the blacksmiths and the carpenters are allowed to interchange professions. I asked him the reason for this. “Both of these groups work for the same clients and both need to learn each other’s skills to work efficiently in the village” – he said.

I enquired if there was any organization or committee to organize the *Viswakarma* groups in the village. “There is nothing here, nothing in the villages nearby. These are small villages. There is an organization in Jagtial. We go there if we have any problems, such as money related ones and appeal to the council. They discuss and take steps”—said Sankariah.

“What about the *Mudda Kammaris*?”—I asked.

“What about them? They are different. They are not actual blacksmiths. They learn their work from wherever they can, and sell their items in the market. They are not a part of us. We *Viswabrahmins* do not mingle with them. They are lower than us” – Sankariah replied with visible disgust.

I asked Sankariah if he was a *Mudda Kammari*, or knows anything about them. He was quick to dismiss that he was a *Mudda Kammari* and asserted that he was only a traditional *Kammari*. “I have heard about the *Mudda Kammaris*. They bring black *wuske* and take out the *mudda*. Therefore they are called *Mudda Kammaris*. They are a part of *Viswabrahmins*” –Sankariah explained. I asked him if he knew Kondiah and Bodanna (both aged *Mudda Kammaris* from Dasturabad). Sankariah said that they are in fact his cousins. “But don’t think I am a *Mudda Kammari*” – he asserted. I asked if he knows whether there is a deposit of *chityam* (slag) in the village or its surroundings. He said that he does not know. And then he volunteered and explained to Mahesh that slag comes out of a hole on one side of a 4-5 feet tall furnace. I asked if he had seen smelting. He said that he had not seen it himself, but he had heard about it from his grandparents.

I asked Sankariah, if there is a village nearby with a big blacksmith population. He said that Mangela, a few kilometres south from there, has many blacksmith families. We can go there and ask. There is an old and knowledgeable smith named Polasa Rajaiah, the father of Polasa Mallesham and Polasa Sankariah.

We thanked Sankariah for sharing his knowledge with us and left for Mangela. I asked Mahesh to take a longer way to Mangela, through the remaining teak forest cover, so that I can drive slowly through it and look for metallurgical remains.

**INTERACTION 43****NAME:** Polasa Rajaiah**AGE:** 67**DESIGNATION:** Blacksmith**VILLAGE:** Mangela, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 28 April 2014

On reaching the village of Mangela, we asked for the house of Polasa Rajaiah. Following the directions we reached a section of the village where, we are told, all the blacksmiths lived. Rajaiah is the patriarch of the two storied, newly built, concrete house. In front of the house, just beside the corrugated iron gate, is a semi-dilapidated brick structure, where the smithy is located. A blacksmith was forging a ploughshare with the help of his farmer client. The smith belonged to this family and was happy to let me photograph him at work as we waited for Rajaiah to return with grocery from the market. We were supplied with plastic chairs and Rajaiah's son and his wife greeted us with chilled water and enquired the purpose of my study from Mahesh. Rajaiah's grandson, approximately 14 years old, was getting ready for school.

Rajaiah arrived within ten minutes. After Mahesh had explained him the objective of my study to him all over again, he consented to speak to us. We spoke to him seating in the courtyard of his house.



Rajaiah said that he is from a traditional blacksmith family and he has been smithing for last 55 years.

“My father was from Kandlapally village. He moved here when I was 2 years old. There was no work in Kandlapally. There was a lot of work here.” – Rajaiah said.

He informed that there are 20 families of blacksmiths in Mangela. All of these families share the same surname (Polasa). They are all related to each other in some way or the other. Among these 20 families, seven have given up blacksmithing and adopted carpentry only. Rest of the families are both blacksmiths and carpenters.

I asked Rajaiah if he was in any way related to the blacksmiths at Nerella (near Dharmapuri), who also share the same surname. He said that he is not aware of any of his relations residing in Nerella. “They must be different people” – he concluded. I asked him about the smithy that is presently functional. He said that when their old house was taken down to make way for the new one a couple of years back, they have moved the smithy here. The smithy was in the backyard of the old house earlier.

“My family and my brother’s family have 45 farmers [families] each. When my father came and settled in this village with other blacksmiths, who were all relatives, they had divided the [the farmer families in the] village in equal parts. Presently all of the 13 blacksmith families have around 45 farmer families each. Before my father died, he divided his clients equally, between me and my brother. The seven carpenters also divide the clients equally among themselves. Each client family gives us 50 kgs of corn annually.”—explained Rajaiah.

I asked Rajaiah, what he does with the surplus grains. He said that there are *Sahukars* in the village, who purchases surplus grains from the blacksmiths and carpenters against

cash. The smiths then purchase other necessary items from the market with the cash thus obtained.

“The farmer needs to bring us charcoal and iron bars from the market. We do not go to the market ourselves. It is not our responsibility. We have to make as many implements as the farmer wants during a year. This includes regular repairs of the implements. They give us grain after the harvest in December and January. The peak season for blacksmithing is just before the monsoon and the entire sowing season. That is seventh, eighth and ninth months (July, August and September). The farmers place their orders on the sixth month (June). The implements are normally made on the day they bring the raw materials, or maximum, within a couple of days, depending on how busy time it is.” – Rajaiah elaborated.

I asked him that since Mangela has a large blacksmith-carpenter community, whether they have any organization or *sangam* to discuss and sort out different community related issues and organise festivals. Rajaiah said that there is a *sangam*, which meets once every month, on the new moon day. “*Amavasya* [new moon day] is our holiday. We are not allowed to work on this day” – he said. They built a small community hall based on monetary contributions by the members of the community. They meet there and discuss their issues and resolve problems. Though the *sangam* is a common platform for all the *Viswakarma* groups in the village, it is dominated by the blacksmiths and the carpenters. “It is mainly us [blacksmiths] and the carpenters who come to the sangam. There are two Ausala houses [families], who also come very rarely. They do not give any money either. The Ausala and Kanchari do not care about us”—Rajaiah clarified.

I asked him about the composition of *Viswakarma* caste. Rajaiah said that it is constituted of five groups in the following hierarchy:

1. *Kammaralu*
2. *Wadlolu*
3. *Kancharalu*
4. *Auslolu*
5. *Silpi*

“We are allowed to marry each other and take each other’s profession. It depends on training. But normally blacksmiths and carpenters work together [take each other’s profession]”—Rajaiah said.

I asked him if he had heard about the *Muddakammaris*. Rajaiah said—“heard about them. I heard about the process [of smelting] little bits too. I know that they are mainly in Dasturabad. I have relatives there and know about Bodanna and Kondiah. Very senior smiths they are.”

“So are the *Muddakammaris* and normal village blacksmiths like you same? Or they are lower caste than you?”—I enquired.

“No no no no. They are in the same community as ours. We are all equal. Since they produce the *mudda*, they are known as *Muddakammari*. They are not a low caste”—Rajaiah confirmed.

At this point I concluded the interview. Thanked Rajaiah for his help. Before parting, I asked him if there are any large blacksmith community in the villages nearby. He said that though all the smiths in the nearby villages are related to each other, there is no big community.

We left Mangela at 10:00 a.m.

**INTERACTION 44****NAME:** Ralabandi Satyaiah**AGE:** 50**DESIGNATION:** Blacksmith**VILLAGE:** Kalleda, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 May 2014

On reaching Kalleda, we enquired about the eldest blacksmith in the village who can speak to us and inform us about the local smith community. We were directed to the house of Rabandi Satyaiah, who resides adjacent to an under-construction *Viswakarma* temple. We met Satyaiah in the thatched porch of his modest, single storied house. Mahesh explained about my research and Satyaiah agreed to speak to us. We sat on a rope “donkey bed” under the thatched porch and began the interview.

Satyaiah has been working as a blacksmith since he was 18. His family has been traditional blacksmiths and carpenters for generations. I asked him if his ancestors had done both blacksmithing and carpentry, or just one of them. He said, “In some villages blacksmiths and carpenters may be different. My family also did blacksmithing only. But now we do both [blacksmithing and carpentry]. I learnt carpentry and smithing from my father.”

Satyaiah said that there are 7 blacksmith families in the Kalleda. Four of them are carrying on with traditional smithing. And three others have welding shops in the village. All of the four families those are carrying on with traditional smithing, have the same surname and are related.

I asked him about his work. Satyaiah said, “There are 100 farmer houses in total in the village. I used to work for 25 houses earlier. But now I only have 10-15 houses. They bring iron and charcoal. The farmers give 60 kg of rice once a year per house. If a farmer house has two brothers living in the same house, they will only pay one share. But if they live in separate houses, they have to pay separately. The payment comes during the month of *Paushamu* (December-January). The farmers only give paddy and if the harvest is not adequate then this amount decreases. Often, the amount of crop they give us is not adequate for the family for the whole year.”

“Where do you get cash to buy other crops and essentials then?” –I enquired.

“We have to buy other grains and extra rice from the market. For this we have to do small time work, like carpentry for the clients who pay in cash and are not farmers. If we work for the farmers, they will pay me in crops. Others give cash which we need.” – replied Satyaiah.

“How many *Viswakarma* houses does the village have?” – I asked.

“The village has 25 blacksmith and carpenter families in total” – He replied.

“So there are just two *Viswakarma* groups in the village? Just blacksmiths and carpenters? No goldsmiths and bronze-smiths?” – I enquired.

“There are goldsmiths and bronze-smiths too. 6 goldsmith houses and one bronze-smith house.”—He clarified.

“Is there a *sangam* for the *Viswakarma* groups in the village?” – I asked.

“All of these communities meet on the day of the *Amavasya*. That is one time every month. We meet at the Hanuman temple. Did you see it? It is new and is made by the government.” – Satyaiah replied.

“Do the members of the *Viswakarma* community maintain this temple?”—I asked.

“No. The temple is maintained by the Brahmin priests.” – said Satyaiah.

Mahesh got curious about the sacred thread that Satyaiah was wearing and asked him why he was wearing it despite not being a Brahmin. “We *Viswabrahmins* wear sacred threads too. We have nine strands of strings in it” – explained Satyaiah proudly. I asked him what these nine strands symbolized. He said that he did not know.

I asked him about the composition of the *Viswakarma* community. He said ,

“*Viswabrahmins* are divided in four groups:

1. *Wadlolu*
2. *Kammaralu*
3. *Auslolu*
4. *Kancharalu*

These groups can marry one another and are all equal. But normally carpenters and blacksmiths marry each other.”

“What about the *Silpi*?”—I asked

“They are different. Not a part of us may be.” –he replied.

I asked him about the *Muddakammari* community next. Satyaiah said that he had heard about the *Muddakammaris* from his grandfather. He knows that they used to make iron from *wuske*. I asked him if they are a part of the *Viswakarma* community. Satyaiah replied, “Probably earlier they were a different community. But I do not know what the difference is now. We are all same. Everyone is a *Viswabrahmin*.”

“What about the *Shisha Kammaris*”—I asked.

“They are different. They are not a part of *Viswabrahmin*. They come to the villages from somewhere and prepare new items and leave. They come to this village too. They make new implements for the farmers and then go away. I make new implements too. But when a farmer needs something immediately, he normally goes to them [*Shisha Kammar*]. They work for everyone. Not just farmers. They are taking our clients too as they make implements for lesser price” –retorted Satyaiah.

I wanted to ask Satyaiah more about the local organization of *Viswakarma*. But he seemed uncomfortable talking about it. He just said, “We select one person every 3-5 years as the head of the community. This person and three other people take care of the community and solves disputes. The farmers need to take our permission before seeking the services of blacksmiths from other villages. I do not know any more than this. The present community head is in Dubai. He is working there. If you go to Sangampally, Thakkalapally, Sumanpally, Gutturajpally and Yeshwantraopeta, you might meet more smiths.” We thanked Satyaiah for the information and left Kalleda for the list of villages he provided.



**INTERACTION 45****NAME:** Bawanapally Kammari Bhumaiah**AGE:** 75**DESIGNATION:** Blacksmith**VILLAGE:** Sangampally, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 May 2014

After getting on to the main road (the highway between Jagtial and Dharmapuri), we asked for directions for Sangampally village. The village was not far away and we reached in fifteen minutes. We asked about elder blacksmiths in the village and it turned out that there is one very old blacksmith named Kammari (blacksmith) Bhumaiah. The villagers told us that he does not work anymore and has been sick off late. They said that we might not be able to speak to him if he was sick. I decided to knock at his doors anyway.

Bhumaiah's house was situated at the centre of the village. A single storied modern concrete building, this appeared to be a recent construction. Bhumaiah, who appeared really frail and sickly, was lying on a bed under the front porch of the house. I asked Mahesh to explain him and his wife about the purpose of our visit, after we had exchanged pleasantries. Both of them understood and were willing to talk to us. However, when I asked if I could record the interview, Bhumaiah did not grant us permission.

“I am from a *Kammari* family. My father and grandfathers were all in the same trade. I started blacksmithing when I was 15. By the age of 20, I was a full-fledged blacksmith.”

I asked Bhumaiah whether he had always lived in Sangampally. He said that his mother had shifted to this village from Kishtapur, near Jannaram after his father died when he was five years old. He was brought up in this village from childhood. Sangampally is his mothers’ ancestral village.

“Was your mother also from a blacksmith family?” – I asked.

“My grandmother’s (mother’s mother) family lived in a village nearby. They were blacksmiths. My mother’s father was also from a blacksmith family. They lived in this village. I learnt blacksmithing from my mother’s family here.”—he replied.

“Do you still work as a blacksmith?” – I enquired.

“No, he is old. He stopped working two years back”—replied his wife.

“Do any of your children work as blacksmiths now? In the village or elsewhere?”—I asked.

“Our son works in Kamareddy. He is not a blacksmith. He is in government service. My wife works in the field. I am the only blacksmith in the village. After I stopped working, there are not blacksmiths at present in the village.” – he explained.

“So where do the farmers go for their implements now? Are there any carpenter-blacksmiths?”—I asked.

Bhumaiah and his wife simultaneously explained that Bhumaiah used to work for 60 farmer families. While most of them bought tractors to till their land, those who haven’t,

are dependent on the *Shisha Kammaris* of Jagtial. Bhumaiah also explained that there are no carpenter-blacksmiths in the village.

“So when you worked as blacksmith, how did these sixty families pay you?” –I asked.

“The farmers used to pay us in corn and paddy. Each family paid 30 kg of paddy and 40 kg of corn. This was paid once every year. We will keep an amount needed for the household and sell the rest to the *Sahukars* against cash. We used this money to purchase other grains and essentials from the market.”—Bhumaiah explained.

I asked Bhumaiah if a blacksmith can change professions and take up goldsmithing or bronze-smithing. Bhumaiah’s wife said that Bhumaiah’s brother is a blacksmith settled in their ancestral village of Kishtapur. The son of this brother is a goldsmith in Jannaram. “If they learn, then they can do any of the five works. We do not have a good relationship with my brother’s family though. There is a land dispute with my brother’s son unfortunately. We do not go and visit them.” –added Bhumaiah.

I asked Bhumaiah about the *Viswakarma* community.

He explained, “we’re five brothers born to Viswa Brahma. We are:

1. *Kammari*
2. *Wadlolu*
3. *Auslolu*
4. *Kancharalu*

[he tried hard to remember the last one but then gave up]. Now no one listens to the *Brahmamgarikatha* [life and teachings of Veera Brahmendra Swamy]. You know, when we were kids and when we were young, some travelling saints will come to the village and

recite *Brahmamgarikatha* for everyone. We went and listened. That is how we know about roots and our community. But now no one cares, and therefore no one comes in the villages. The knowledge is not there at all.”

I asked Bhumaiah about the *Muddakammari* community.

“We do not have any relation with the *Muddakammari*. We don’t go to their houses. They are low and impure. We do not give our children in marriage with them. [With a sigh] But now everyone is mixing with them. Everyone is bringing their girls home [intermarriage]. I have seen people doing it. I have seen some *Muddakammari*s take up blacksmithing like us too. The world has changed. I do not know if for better” – replied Bhumaiah sharply.

“But they are a part of the *Viswakarma* community aren’t they?” –I asked, and immediately realised that that was a mistake.

“Who? *Muddakammari*? They are NOT *Viswakarma*! They claim themselves to be so. But they are never same as us. They are not us!” –was his angry response.

“You’re talking about *Shisha Kammaris* right? –I asked to confirm.

“Babu, once you are asking about *Muddakammari*s and now you are talking about *Shisha Kammaris*. About whom do you want to know? I was talking about *Mudda Kammaris* earlier. Even Muslims and *Shisha Kammaris* do blacksmithing. Does that mean that they will also be a part of the *Viswakarma*? When there was more work for us, everyone came to us. But now everyone goes to the market to these blacksmiths. Our children are also not learning blacksmithing anymore. My son works in a government hospital. He knows carpentry though.”—he explained slowly so that Mahesh and I can understand.

I asked him about the *Muddakammari* settlements nearby. He gave me the following list of villages:

1. Pembatla
2. Konapur
3. Mallyala
4. Ayispur
5. Battapally
6. Yashwantraopeta

I asked Bhumaiah about the *Viswakarma* families in the village. His wife said that there are:

Carpenters: 03

Goldsmiths: 02

Blacksmiths: 01

I asked if there is any organization of the *Viswakarma* in the village. Bhumaiah replied that since the community at Sangampally is small, they do not have any formal organization. They just talk to each other and discuss matters when necessary. However, there is a large organization at Jagtial.

Bhumaiah was tiring and his wife wanted to serve him lunch. So we thanked him for all the information and wished him well.

**INTERACTION 46****NAME:** Rajaram Swamy**AGE:** 51**DESIGNATION:** *Mudda Kammari***VILLAGE:** Pembatla, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 May 2014

On reaching Pembatla we asked about the eldest blacksmith in the village. We were directed to the house of one Rajaram Swamy, who was the eldest blacksmith in the village. Swamy lives in the blacksmith quarters on the edge of the village. When we reached his house, he had just finished working for the day at his smithy and was currently washing up for lunch. I hesitantly asked him if he will have a few minutes to speak to us. I also offered to wait until they have eaten. Swamy wanted to know the purpose of our visit and after Mahesh had explained in brief, he recalled our team visiting a few years earlier. He told Mahesh that back then we collected *inumu-chityam* (iron slag) from the field. He also agreed to speak to us and said it will not be a problem if he ate a little late.

Swamy is working as a blacksmith from 18 years of age. He said that he was from a traditional blacksmith family and Pembatla is his actual ancestral village. He had also learnt carpentry along with blacksmithing because it was financially more rewarding.

“Earlier there were 30-40 families of farmers who were my clients. But now I only have 5-6 families. Others have started using tractors.”—Swamy said.

“Do you forge new implements for your clients or they just come to you for repairs.”—I asked.

“Both. If they need *Karlu*, *Godalu*, *Khurpelu* etc. then they come to me. They also come to me for repairs.”—he explained.

“Do they give you crop as payment?”—I enquired.

“Earlier I used to take crops. Now I ask for money. The farmers prefer to sell their crops in the market in place of giving a share to us. Therefore they started going to the *Shisha Kammaris* who always take payment in money. We were losing out in competition with them because we asked for crop as payment. The *Shisha Kammaris* also work quickly. They give them the implements almost immediately, and also against less money. So the farmers prefer going to them only. We are trying to compete, but failing.”—explained Swamy with a tone of melancholy.

“So how much do you charge them, or, how much the farmers are willing to pay you?”—I asked.

“They pay us 500 rupees each per year. Earlier each family gave us 40 kg of paddy and 40 kg of corn. But now they prefer to pay less in cash to the *Shisha Kammaris* and purchase their readymade items.”—Swamy replied.

“Do you know anything about preparing *mudda* from *wuske* (iron-sand)?”—I asked, trying to find out if he was a *Mudda Kammari*, but not asking it directly. I used technical terms (like *mudda* and *wuske*), which he may pick up on if he had knowledge about smelting.



Swamy's face lit up at the question, he started replying in a high and proud voice, but then it transformed into a hushing tone, as if he was trying to protect the identities of his ancestors.

--"My grandfather used to prepare *mudda*. My father's mother used to say that he, along with some other people from the village, used to prepare it across the Godavari, in the jungles of Adilabad. My father's mother stayed in this village permanently. But her husband, my grandfather, used to roam around in the jungles of Adilabad to prepare iron. They used to walk the whole distance between here and Adilabad district."

- "So you're from a *Mudda Kammari* family?"

- "Yes, we are *Mudda Kammari*."

- "How many blacksmith families are there in the village?"

- "24-25 *Viswakarma* families. 10-11 blacksmiths."

- "All the 11 blacksmith families are *Mudda Kammari*?"

- "No. Only five of us, the Rajaram families are *Mudda Kammari*. Others just blacksmiths. Their surname is Sankoji. There are 6 families of them. They are Marathas [from Maharashtra]. They also do carpentry."

- "What is the difference between the *Mudda Kammari* and other blacksmiths?"

- "We made iron. So we are *Mudda Kammari*. They did not make iron. So they are just *Kammari*. There are no other differences. We are all same."

- "Apart from the blacksmiths, what are the other *Viswakarma* families in the village?"

- "There are:

*Kammari*: 11

*Auslolu*: 05

*Wadlolu*: 08

And there are *Mallanna* people. They are the farmers. Our clients.”

It was getting late for his lunch. Before thanking Swamy and departing, I asked him if there is a *Viswakarma Sangam* for the village where 24 families met on a regular basis to discuss and resolve their issues. Swamy said that there is a *Sangam* in the village. All the families meet every *Amavasya* (new moon) morning. There are two people who are selected to be heads of the *Sangam* and preside over these monthly gatherings. There is no duration for their tenure. The *Sangam* is very informal and the current heads have been holding their position for the last decade. The meeting takes place in a community hall that they have constructed. If there are any disputes, they hold an emergency meeting where these two heads would listen to the arguments and give their judgement. What they say has to be followed by the members of the community.

Finally Swamy added—“Go to Gangapur. There is knowledgeable blacksmith named Chakkapally Gangaiah. He will be able to tell you more about our *Mudda Kammari* community.”

**INTERACTION 47****NAME:** Chakkalapally Gangaiah**AGE:** 45**DESIGNATION:** Blacksmith (probably *Mudda Kammari*, unwilling to disclose)**VILLAGE:** Gangapur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 21 May 2014

I had expected Gangaiah to be a senior smith, older than Swamy. At least it appeared such, based on how Swamy had recommended him. But when we reached his house, we met a younger person than Swamy. He was chatting with a friend under the shade of his smithy, which is situated at the road-side edge of a fairly large open courtyard of his house. Mahesh explained that we have been directed to him by Swamy, and would like to talk about blacksmithing for the purpose of my research. Gangaiah seemed sceptical and repeatedly enquired if we were from the government and would like to issue him a loan. He asked what his profit will be from talking to us if there is no monetary reward coming out of it.

Mahesh was ready to give up. But I insisted to try one more time. I asked him to explain that I was a student and do not have any money to give him. I will only speak to him if he is willing to and that I can just help him by writing about the blacksmith community as the end product of my research and blacksmiths of the region in limelight if my research is

successful. To make it successful, I would like to have his cooperation. We will leave if he still does not want to talk to us about his work.

After some more persuasion, Gangaiah hesitantly agreed to talk to us.

Gangaiah is from a traditional blacksmith family. He started to work at the forge from 18 years of age. Gangaiah said that he has later taken up carpentry, but he is not much good at it. He just knows how to make handles of the implements he forges or repairs.

I asked him how many farmer families he works for.

“I have 10 families of farmers.”— was his curt reply.

-“How much do they pay you?”

-“The farmers give 90 kg of rice each.”

-“When do they pay you?”

-“They pay during Ugadi. But if I ask, they will pay twice a year. First in December and next in Ugadi[March-April].”

-“Do you sale the surplus amount of grain in the market to buy other essentials?”

-“What surplus? We do not have any extra. This grain is not enough for us.”

He was getting visibly irritated. But I needed some more information. In order to get to the point of *Mudda Kammaris*, I asked him how many blacksmith families are there in the village. He said that there are 8 families of blacksmiths. But five of them do not work as smiths anymore. The male members of these families have gone to Dubai for work. They all have the same surname (Chakkapally).

“Are these blacksmith families *Mudda Kammaris*?” –I asked.

“*Mudda Kamhari*? We do not know anything about *Mudda Kamhari*. We are NOT *Mudda Kamhari*! We are just *Kammari*.” – was his irate reply.

I realised that it will not be wise to carry on with the interview further. I was about to thank him and leave. By that time, Mahesh had already asked him a question about how many *Viswakarma* families are there in the village at present. Gangaiah said that there are:

*Kammari*: 08 (only 3 working at present)

*Auslolu*: 03

*Carpenters*: 00

We thanked Gangaiah and apologized for troubling him with our questions. Gangaiah was visibly relieved. We left Gangapur at 3:45 pm.

**INTERACTION 48****NAME:** Chintala Venkataswamy**AGE:** 62**DESIGNATION:** Blacksmith**VILLAGE:** Arnakonda, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 22 May 2014

After a sixty kilometre long drive through the national highway, we reached Arnakonda at 8 am. On enquiry it appeared that there is currently one family of blacksmith in the village. The name of the smith was Chintala Venkataswamy. Following the directions, we took the dirt road that led to the centre of the village and stopped on seeing a very modest smithy by the roadside. We asked for Venkataswamy in the adjacent house, and we were directed to a neighbouring house, with a large open front courtyard. Venkataswamy, an old man of sixty, came out and greeted us with a mixture of wonder and surprise. Mahesh explained the purpose of calling on him. He recalled that there was a group of foreigners in 2010 that had come to the village and collected some *chityam* from the adjacent fields. I said that I was there to consolidate on that research and for that I would like to know more about local blacksmith community from him. Venkataswamy had immediately agreed and invited us inside his house.

Venkataswamy has been blacksmithing from the age of 16 years. “I am from a *Kammari* family. I have worked for all these years. But now I have no work. Everyone uses tractors.”

“How many farmer families did you work for?”—I asked.

“I had 200 families earlier. I am the only blacksmith in the village now. The other smith died 5 years earlier. Earlier there were five active blacksmith families in Arnakonda. I am the only one remaining now. And that too for small repairs and occasional works. Two blacksmiths are teachers. Their fathers used to do blacksmithing. Even I have not worked much in last four years. I do not have many people coming.” —explained Venkataswamy in one breath.

—“What about your family? Do they not want to take up blacksmithing?”

—“I do not have a family. I mean I do not have a son. And even if I had, they would not have taken it up. There is no income in this you see.”

—“But you said that you have not worked much at all in the last four years. Does that mean all the farmers in the village use tractors now?”

—“Yes. Even those who cannot afford purchasing one, normally rent tractors from the towns during the [agricultural] season. I only work if someone requests me to forge something or repair something.”

—“How do you get paid for it? Cash? Or traditional system of crop payments?”

—“They only give me cash. I would have preferred crop though. But not much work you see. Earlier I they used to come to me regularly. Each family paid me 50 kg of rice and 50 kg of corn. That was too much grain then. I sold the excess amount in the nearby market.”



I suggested that the *Kammaris* could set up shops to sell their products beside the highways, or in neighbouring towns. That may alleviate their poverty to a certain extent. This suggestion embarrassed Venkataswamy.

“We will never do that!” he retaliated. “That is the work of those low-caste *Shisha Kammaris*. How can we break traditions and sell our products in the market? Our skill is for our village only. We cannot break tradition. How can we be *Viswa Brahmins* then?”

“But what about the *Kammaris* who are working in other professions like schoolteachers, or taking up carpentry? —I probed.

“That is because of our misfortune. That doesn’t change our identity. Even if you are a schoolteacher, you are from a *Kammari* house. You remain a *Kammari*. *Wadlapani* [carpentry] is a part of our *Viswa Brahmins* [caste]. A *Kammari* can do that of course. But we can never make things for the market.”—Venkataswamy explained.

I asked him about his work schedule. Venkataswamy said that he used to start work in the last week of July, just before the arrival of monsoon. Farmers used to bring *patti* (iron bar) from the market, and charcoal from their oven and placed their orders. He used to forge the items on the same day. Implements he forged were *khurpelu*, *kodalu*, *godalu*, *karlu*, *tawra-palgolu*, *palgolu*.

Venkataswamy provided me a list of implements one farmer needed to cultivate his land in a year. Here is the list:

*Nagalu*: 02

*Khurpelu*: 10

*Kodalu*: 20

*Godalu: 2-4 (maximum 5)*

*Karlu: 02*

*Palgolu: 01*

*Tawra-palgolu (grass cutter): 2-3 (depending on size)*

*Cartwheel rims: 02 (35 kg of iron each)*

“You don’t need to make these every year. Sometimes repairing old items would be sufficient”—he added.

“What kind of iron did you use?” –I asked.

“Market iron. From Karimnagar or Choppdandi or Jagtial.” –Venkataswamy replied.

“You did not use *mudda* then?” –I asked.

“I have not used *mudda* myself. I heard that my father in his early days and his father before him had used *mudda*. They used to make it in the village. There were three places where they made it. But now two of them are destroyed. Only the one by the highway remain.”—he explained.

“Who made these? Did your father and grandfather made these themselves?”—I asked.

“No. The *Mudda Kammaris* made these in big furnaces, I heard. At least three generations have passed now since they stopped making them. They have gone away from the village. Not here anymore.”—Venkataswamy replied.

“Were the *Mudda Kammaris*, a part of the *Viswakarma*?”—I enquired.

“I am not sure about that. I have heard that those who made iron were from SC (scheduled caste) community. Not sure if they were from *Viswakarma*.” –He replied.

I asked him about the *Viswakarma* community at Arnakonda. Venkataswamy said that there are 20 *Viswakarma* families in the village. They formed a new *Sangam* last month. It was yet to be registered with the local government. He showed me a book which keeps record of accounts of the *Sangam* and minutes the monthly meeting details. The first entry in the book was from October 5, 1994. I asked Venkataswamy about it. He explained that there was a *Sangam* in the village in the 1990s. He was the president. Each member used to pay Rs. 50 per month back then. They used the collected amount for giving out loans to the needy members of the community. But those who took out loans from the *Sangam*, did not return the money. Therefore the *Sangam* had stopped functioning. He said that at present, there is a *Sangam* for all the *Viswakarmas* coming under Choppadandi mandal (of which Arnakonda is a part). There are 10 villages in this mandal. In a recent meeting of this *Sangam*, the representatives from Arnakonda had resolved to form a formal *Sangam* once again.

I asked him about the membership rules in the new *Sangam*. I was interested in it because in the present scenario, when most of the rural *Viswakarma* have moved away from their traditional craft practices, it intrigued me to see how identities are formed and propagated.

Venkataswamy explained that anyone who is from a *Viswakarma* family, and minimum 18 years of age, can become a member. Both men and women are allowed to become members and attend the meetings. If *Viswakarma* family is not practicing their traditional craft, they can also become a member. Pursuing traditional craft is not essential to the identity. Being born in a *Viswakarma* family would be enough. However, if anyone wants

to withdraw a loan from the *Sangam*, then they will have to be pursuing their traditional craft. Otherwise loans will not be issued. The purpose of these loans are to support a fellow *Viswakarma* to improvise on their technical skills only. All the members of the community must meet on every *Amavasya* (new moon) morning. The meeting used to take place in the ancestral house of Venkataswamy since they did not have any *Viswakarma* temple in the village. But now the community is planning to construct a temple. I asked him if the temple would be Veera Brahmendra Swamy temple, or a *Mammayee* temple.

“It will be a *Viswa Brahmin* [Veera Brahmendra Swamy] temple. *Mammayee* is the goddess of all smiths and her temple is in Kalvala. Most smiths go to Kalvala once a year to worship her. I do not go. It is far.”—Venkataswamy explained.

I asked him if there was a hierarchy among the five craft groups of the *Viswakarma* caste. He said that they were all equal. Five fingers of the same hand. They are like five brothers. I asked him who the eldest brother was. He gave me the following list of brothers in succession:

1. *Kammari*
2. *Wadlolu*
3. *Silpi*
4. *Kancharalu*
5. *Auslolu*

He said that he was not sure about the position of *Silpi* and *Kancharalu*. But he was certain that *Kammari* were the eldest and *Auslolu* were the youngest.

I asked how many families of each of these groups are residing at Arnakonda.

Venkataswamy said that there were:

*Kammari*: 08 (Venkataswamy is the only working blacksmith)

*Wadlolu*: 05

*Auslolu* (both gold and silver smiths): 08

“There is a big *Viswa Brahmin Sangam* at Karimnagar (town). There are regional *Sangams* in Jagtial, Choppadandi and Godavarikhani too.”—Venkataswamy stated.

I asked him where the *Viswakarma* temples were nearby. He said that there are a few temples in the surrounding area. All of them dedicated to Veera Brahmendra Swamy.

Those are at:

1. Vasaraya near Karimnagar
2. Gumlapur near Choppadandi
3. Katkkanapally near Dharmaram
4. Choppadandi (opposite to a small petrol pump near Srinivas Theatre)

We expressed our gratitude to Venkataswamy for finding time and give us so much information. While we were about to leave, Venkataswamy said, “Remember Arnakonda was known as *Ironokonda*. That is where the name comes from. This was a famous village for making iron. Write that in your book.

**INTERACTION 49****NAME:** Thiparthi Sathyanarayana**AGE:** 43**DESIGNATION:** Carpenter, priest of Veera Brahmendra Swamy temple**VILLAGE:** Anantharam, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 23 May 2014

On reaching the Veera Brahmendra Swamy temple at Anantharam, we asked for the priest in the adjacent cycle repair shop. The priest, and owner of the temple lived nearby. As I was making my notes in sitting on the temple porch, Mahesh went to look for the priest at his house. He returned after 15 minutes with Thiparthi Sathyanarayana, the priest and owner of the temple. Sathyanarayana is the grandson of the founder of the temple.

Mahesh had already explained the purpose of our visit. Sathyanarayana confirmed once again that this was not a government visit and not a government audit of the property. I ensured him and showed him the letter from the university and my IDs. He agreed to speak to us about the temple and the community surrounding it. When I asked permission to record, he said that recording and taking his picture would be inconvenient. He asked if I had taken any pictures before he had arrived. I said I had. He humbly requested me to delete them since he would not like to be in any kind of politics surrounding the temple. "It

is my responsibility to serve the community as the priest of the temple and protect the temple as my family heritage” –he explained. I had to delete all the pictures before he gave us any further information. Mahesh tried to placate him, but to no avail.

Sathyanarayana said that the temple was established by his grandfather in the 1994. It was constructed out of donations that his grandfather had collected from the *Viswabrahmins* of Anantharam and a few other surrounding villages. His acquaintances outside the “caste” had also contributed financially. People from those villages, which had contributed for the construction of the temple, come to this temple for worship.

“Are all of those who come, *Viswabrahmins*?” –I asked.

“Yes, most of them are. Sometimes other communities also come in need of emergency puja.” –Sathyanarayana explained.

“Why did your grandfather decide to build a temple here?” –I enquired.

“He had a dream one day where he was instructed by the *Viswabrahmin* to do something for the community. He decided to build a temple where the community can come together.” –he replied proudly.

“Do you have any annual festival here for the *Viswabrahmins*?” –I asked.

“Yes. There is a three day festival every year. In the month of *Falguna* [March], on the day of *Trayodashi* [13<sup>th</sup> day of the moon’s fortnightly passage from new moon to full moon].” –he explained.

“Why during this time of the year?” –I asked.

“This is an auspicious time for us.”—He replied.



I asked him if he was from a *Viswabrahmin* family. Sathyanarayana said that he is from a carpenter family; however, he used to do welding in a welding shop.

“Please tell me something about the deity that you worship here.”—I asked humbly.

“If you want to know about the God, then by a book named *Sri Veera Brahmendra Swamy Charitra*. You will get that in any shop in Jagtial. I will just tell you that the name of our deity is Veera Brahmendra Swamy and that is his wife Govindamma.” —He said, sounding displeased by the question.

I asked him if this book is available in English. He said that if I want to know about the deity then I can only learn it after learning Telugu. There is nothing in English. I asked him if he knew anything about *Mammayee*. Sathyanarayana replied that *Mammayee* is equivalent to *Parvathi* (the consort of Shiva).

“Who is Govindamma then? Are they same?”—I asked.

“Govindamma is Laxmi [consort of Vishnu].”

“If you please, then can you explain the origins of the *Viswakarma* community?”

“From God Viswakarma and his wife Gayathri, five Gods and five Goddesses originated.

From Viswakarma originated:

1. Brahma
2. Vishnu
3. Maheshwara
4. Indra
5. Aditya

From Gayathri originated:

1. Adishakti
2. Parashakti
3. Icchashakti
4. Jananashakti
5. Abidhanshakti

From each God originating from the Viswakarma, one craft group had come into being.”—  
He explained.

“What about those which originated from Gayathri?” —I asked.

“You will know if you read the *Viswakarma Suttam* of the *Yajurveda*.”—he replied.

“I would love to read it. But now, since I have not read it, I want to know from you for the sake of my knowledge.” —I said.

“Read the book.”—was his reply.

It appeared that he probably does not know much about the mythology and therefore was trying to avoid discussion. I decided not to pester him about the esoteric side of things anymore and turned the discussion to more mundane things.

I asked him about the temple. Sathyanarayana started telling me about his grandfather.

“He started working for construction of this temple from 1980. It took 14 years to collect donations and get the temple built. My grandfather was a carpenter, and a great *vastu* astrologer. After his death, one of his clients, Rajprakash Reddy of Jagtial, donated 3 *guntas* of land to the temple trust. The body of my grandfather is buried there and a new temple was raised. That is the temple adjacent to this one.” —he narrated.

“Who looks after the temple now? Is there a *Sangam* of the *Viswakarma* families, or it is you family who is responsible for the upkeep of the temple?” –I asked.

“I and my brother Purushottam take care of the temple. There are 25 *Viswabarhmin* families in the village. But we do not have any *Sangam* yet. We look after the temple ourselves and also officiate *Viswabrahmin* marriages as priests.” –Sathyanarayana replied.

After this he said that he would have to leave for some work in Karimnagar. He gave us a list of places where there are *Viswakarma* temples. The villages are:

1. Katkkanapally
2. Jagtial
3. Karimnagar
4. Korutla
5. Mancherial
6. Pudur

We thanked him for taking the trouble of speaking to us and started for Katkkanapally near Choppadandi.

**INTERACTION 50****NAME:** Krishnamachari & Krishnamachari (Jr.)**AGE:** 63 & 34**DESIGNATION:** Goldsmith, priests of Veera Brahmendra Swamy temple**VILLAGE:** Katkanapally, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 23 May 2014

When we arrived and parked by the perimeter wall of the Veera Brahmendra Swamy temple at Katkanapally a crowd of curious villagers was already building up. An old, long haired man draped in a saffron robe with turmeric paste smeared on his forehead, parted the crowd and came up to us. He introduced himself as Krishnamachari, the chief priest of the temple asked who we were and why were we there. I asked Mahesh to explain him about my research. He understood what Mahesh had to say and then invited us inside the temple. The main shrine was closed for the mid-day feeding and rest of the deity.

Krishnamachari asked us to wash our feet and hands before we could step inside the temple yard. We sat together under the porch and started to talk. Krishnamachari had summoned his son Krishnamachari (Jr.) from his house adjacent to the temple. "He is a lot more educated than me. Perhaps he will be able to help you more than I can. But until he comes, you can ask me questions" –he said.

I asked his permission to record the interaction. Krishnamachari sounded really sceptical about this. I asked him if I could take pictures of the temple and of him speaking to us. He said that the pictures of the temple are available at [www.pvbstemple.org](http://www.pvbstemple.org), the official website of the temple. “You will get more information about the temple there too. But ask me your questions” –he said, suddenly defensive.

I started with asking about the *Viswakarma* community of the village, and decided to move gradually in the direction of the esoteric stuff. Krishnamachari said that there are 12 *Viswakarma* families in the village of Katkkanapally, and the temple was constructed in the year 1970 by donations of several people from “world over”. “You can find that in the board” he said.

At this point, Mahesh, not asking me, had asked Krishnamachari a question about the cult. The transition was very random, but Krishnamachari did not mind answering the questions. That was a relief.

“Whole world is run by five elements. *Mano, Maya, Twasta, Shilpi* and *Vishwajnya*. The creator of the universe, Lord Viswakarma had created those five elements during creation.” – Krishnamachari explained.

“What do these five elements represent?” –I asked.

“I will tell you.

1. *Mano* means [represents] iron
2. *Maya* means [represents] wood
3. *Twasta* means [represents] brass or bronze
4. *Shilpi* means [represents] stone/any sculpture

### 5. *Vishwajnya* means [represents] gold/silver

Without these five things, there could be nothing in the world. Everything is made up of a combination of these five elements and there can be no life without it.”—Krishnamachari explained.

“So this is where the five professions of the community originates?” –I asked.

“Yes, we are the guardians of these five elements. Whoever has chosen whichever profession among these, has to carry on with that from birth till death. There is no neglecting these professions. Life cannot happen without us. Life cannot happen without us working with these elements. That is what we are made for, to keep the world running. This is why we are important and everyone comes to us.” –Krishnamachari seemed passionate while explaining it.

“So all these five groups are equal to each other? There is no hierarchy at all?” –I enquired.

“All of us, all these groups are equal and everything, every work has their own importance. No work is less.” –Krishnamachari replied.

“What about women? Can they work with these five elements too?” –I asked.

“Women originated from Gayathrimata. They are not different than men, who originated from Viswakarma. Viswakarma is the male side of the world and Gayathrimata is the female side. They make the world exist together. They cannot live without each other. Men and women, likewise, cannot exist without each other. While men work with the elements, the women support them from behind.”—he explained.

“What happened after the creation of these basic five elements? Where do the Viswakarma’s of today come from?”—I asked, unsure if I had phrased it correctly for Mahesh to translate. Luckily, it turned out that Krishnamachari had understood.

“Five faces of Viswakarma stands for these five elements. They have different colours matching the colours of the element. The *Mano* [iron] is black, *Maya* [wood] is brown as wood. Like that. Out of these original five elements came five *rishis* [sages]. They worked with one of these elements each. Out of them came five more *rishis* each. So we had 125 *rishis* in total. All the *Viswabrahmins* today originate from the lineage of one of these 125 *rishis*. The names of our *gothras* [lineages], are after the *rishi* who we come from.” – Krishnamachari explained slowly, allowing Mahesh to translate after each sentence.

At this point his son Krishnamachari (Jr.) arrived. He was draped in a white cloth, and carried his brand new Ipad Air. Mahesh had to explain the details about me and my research all over again to him. He wanted to check my identity proof. He ran a search with my name on google and looked me up on my Exeter University profile page. Being satisfied that I was not an undercover government agent perhaps, he agreed to speak. He sent his father home for lunch. I asked him if it would be inconvenient for him if I recorded the conversation. He said that I can record anything I wanted. But I have to make sure that I use it for research purposes only. I promised that this would be the case.



**INTERACTION 51****NAME:** Members of local *Viswabrahmin Sangam***DESIGNATION:** Blacksmiths & Carpenters, priest of Veera Brahmendra Swamy temple**VILLAGE:** Choppadandi, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 23 May 2014

We reached the Veera Brahmendra Swamy temple at Choppadandi around 13:30. The members, along with the priest were waiting for us. They were really eager to talk. We sat in under the tin shaded porch of the temple. However, they did not allow us to record the conversations. Photography was allowed, but not with the members in it.

This newly constructed temple is managed by the blacksmiths and the carpenters of Choppadandi, which is a large village, almost like a small town.

“There are 73 families of *Mano-Maya* community in the village. *Mano-Maya* means blacksmith and carpenters. This is a mandal level *Sangam*.”—the president of the community said.

I asked them about the election procedure for the community. I was told that elections are conducted every year among the members and they elect one president every year. They also meet on the new moon day morning every month to discuss and resolve their issues, as well as give out loans and other forms of financial support to the community members in need. They also discuss about the issues concerning the welfare of the local

community of blacksmiths and carpenters. They collect Rs. 3000 in total every month as mandatory contributions from the members and the interest they receive out of it, is spent towards the development of the temple.

“Are there other *Viswakarma* communities in the village other than the blacksmiths and carpenters?” –I asked.

“There are 55 goldsmith families.” –one of the committee members replied.

“They do not come to the temple? Are they not the members of the same *Sangam*?”—I asked.

“No they have their separate *Sangam*. They are not interested in the temple and they do not contribute towards the development of our temple. They are different than us. They did not donate any money when we established this temple 2 years back. Anyone can become a goldsmith you see. But not anyone can become a blacksmith and a carpenter.” –the president explained.

“The priest of the temple comes from the *Viswakarma* community of the village too?”—I asked.

“The priest that we had earlier, was a carpenter from the village. But he had died recently. So we appointed a new priest. He is not from the *Viswabrahmin*. He is from the *Padmashali* community [community of weavers].” –the president explained.

“Can a *padmashali* become a priest of the Veera Brahmendra Swamy temple?”—I asked.

The priest, who was closing the temple down for the day, heard this question from inside the shrine and shouted his reply. “Any community can become the priest of the *Viswabrahmin*”—he said.

I asked them about the festivals that they celebrate at the temple. The *Sangam* members told me that they celebrate three festivals in a Telugu calendar year. These are:

1. *Viswakarma Jayanti* [Viswakarma festival] in September
2. *Brahmangaru Aradhana* [Veera Brahmendra Swamy festival] in May
3. *Ugadi* [Telugu new year] in March-April

“We do not work for five days leading to *Ugadi* [the new year’s day].” –one of the members explained.

“Did this *Sangam* exist before the temple was constructed?” –I asked.

“The *Sangam* is thirty years old.” –the president replied.

“Why did the *Sangam* decide to build the temple two years back? Was there a temple earlier than this?”—I asked.

“There was no temple earlier. We decided to build it a couple of years back because we thought it will be good to have a fixed space where we can gather as a community and worship as a community. We also got promises of donation for this.”—the president said.

“You said that this is a mandal level *Sangam*. What does that mean?”—I enquired.

“It means that we look after the community in 16 villages. Each of these villages, which form the Choppadandi mandal, has a *Viswabrahmin sangam*. They come to us if they have some minor issues that they cannot resolve. There is also a district level *Sangam* based in Karimnagar town. They handle bigger and more serious issues concerning the community’s development. Their elections take place every 2 years.” – one of the members replied.

“Can you vote in the district level *Sangam* election?”—I asked.

“No, only the president can vote if he wants to.”—the member replied.

“What kind of issues does this *Sangam* at Choppadandi primarily deal with?”—I asked.

“We deal with all sorts of issues and problems regarding family and personal issues of the community members, financial issues and work related problems. If anyone among us have a problem with their clients in terms of payment or something else, then we discuss and resolve the problem.” —the president replied.

“In the villages I visited so far, the main problems that the blacksmiths are facing are the advent of tractors and the farmers depending overwhelmingly on the services of the *Shisha Kammaris*. Is this the case here too?” —I asked.

“Tractors are taking away our work and clients. That is true. But we need to accept technology. We have moved on from traditional blacksmithing to having our own welding shops by the side of the roads.” —the president explained.

“What about the *Shisha Kammaris*?”—I asked.

“The *Shisha Kammaris* keep on moving around. They do not stay at one place. They do not even have proper IDs. They are not a part of our community. They are taking our jobs and our clients. This is true. But they are hard-working and we do not have any complain about them taking away our jobs.” —the president responded.

We wrapped our conversation up at this point. We were exhausted and the heat had drained us. We were ravenous too and had to go back to Jagtial. We thanked the members for all the help and information. They were very kind to then take us to a nearest

tea stall and offer us buttermilk—a perfect treat for the scorching summer heat, and a requirement for a straight 60 km drive back to Jagtial under the sun.

**INTERACTION 52****NAME:** Kasarla Narasaiah**AGE:** 49**DESIGNATION:** Blacksmith, former scissors-smith**VILLAGE:** Kodimiyala, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 27 May 2014

On reaching Kodimiyala, we asked in the shops on our way about the blacksmiths. They directed us to a street with a series of car or motorbike repair and parts shops. We were told to ask for Kasarla Narasaiah, who “makes scissors”.

Kasarla Narasaiah’s residence is situated amidst a host of grocery stores and car repair stores. The two storied house has workshop attached to it, which serves as a welding shop. Narasaiah was sitting under the tin shaded front porch of his house and lighting up his small, make-shift hearth for the day. A few customers have gathered around the temporary working area to get their shovels, sickles and knives sharpened. We approached him and explained the purpose of our visit. Narasaiah agreed to talk to us. But he said that we will have to wait until he finishes lighting the hearth properly. The customers asked us questions, most of which were regarding if we were from the government and about potential loan coming on the way of Narasaiah or the village community. Mahesh did very well to explain that this visit was for academic reasons. This

seems to have taken everyone by surprise. “What is so academic about studying the blacksmiths”, asked a customer with shovel. I explained that I heard about the heritage of scissor making at Kodimiyal, and it is important to record the tradition and write about it. One of the customers pointed to Narasaiah and said that he is a very skilled scissor maker and we have come to the right place.

While we were speaking to the customers, Narasaiah had already finished lighting the fire and able to finish most of the small time repairs. He asked the remaining customers to wait and asked his wife to give three cups of tea. He brought two plastic chairs out for us to sit. I said that I will be comfortable sitting near him at the makeshift smithy and talk to him.

Narasaiah is from a traditional blacksmith family. His father was a normal village blacksmith serving the farmer clients.

“So he was not a scissor maker?” –I asked.

“No. He did not do scissor work” –he said.

“Where did you learn scissor making then? From other smiths in the village?” –I asked.

“I went to Kammarapally. I have some relatives there. I worked in a workshop as an apprentice. Kammarapally is near Metpally. I learnt scissor making there. Me and my brother.”—Narasaiah explained.

I asked him why he travelled to a different place to learn scissor making when other blacksmiths were making scissors in the village already. He could have learnt from the village. At this he explained that there were 21 families of blacksmiths in the village in his childhood. But now there are only 5-6 families working. None of these 21 families made



scissors. They went out of work and most of them went abroad since there was no work in the village due to the coming of tractors. His father sent him and his brother to Kammarapally to acquire this new skill so that they will have work in the village.

“Tell me more about your apprenticeship.” –I asked.

“I learnt work not from my father. I learnt work as an apprenticeship. Then I came back to the village [Kodimiyal] and made scissors here. Me and my brother. I had six peoples to work under me. They learnt from me. At first the business was good. But then people started buying scissors from shops. So the business went down. I went to Bahrain to work as a labourer in construction. But I lost money there and had to come back. Now I have this welding shop and do small repairs.” –Narasaiah said.

“Did you make scissors for Kodimiyal only, or were there demands from other nearby places. Siricilla for example?” –I asked.

“I had customers from the whole region. People from Kamareddy, Jagtial, Siricilla, Armur came to purchase scissors in bulk from me.” –He replied.

“Did you make scissors in bulk or only according to orders?”—I asked.

“I got orders from all these places. From shops and tailoring shops. When they ordered I made as many they wanted. I did not make extra. Sometimes the customers will come and place orders. I will have to carry the order to their shops and deliver them.”—he said.

He asked his wife to bring the pair of scissors that he had made.

“When did you start to make scissors in the village?”—I asked.

“In 1990.” –he replied.

“When did you start learning in Kammarapally?”—I asked.

“I learnt under my guru V. Srimaiya from 1980-1990.” –he said.

“What was the cost for one pair of scissors then?” –I asked.

“30 rupees each. I made minimum 30 scissors in a day.”—Narasaiah replied.

I asked him again about the community of blacksmiths in the village. I told him that I heard that there are many blacksmiths making scissors in the village. From what he said it seemed that he and his brother were the only one who were making scissors. I wanted to know if he had understood the question properly. I asked Mahesh to rephrase the question so that he can understand better.

Narasaiah understood the question and said that there are 21 families of blacksmiths in the village. 5 of them were still working, but the rest have moved to all kinds of professions, and a few of them have even gone to the Middle East to “earn money”.

“You said that you had six apprentices. Were they all from blacksmiths families?” –I asked.

“No they were from different communities. Not *Viswabrahmin* either.”—He said.

“Is it allowed by the community?”—I asked.

“I took them because they were the ones who showed interest in the work. I needed helpers to make scissors. It is not a one person work. The people from my community opposed. But I still took them because they were interested in learning.”—Narasaiah explained.

I asked him about the customers who bought the scissors from him. I wanted to know if they were from one or two specific communities such as weavers and barbers. Narasaiah said that the customers were from all the communities. They were weavers, barbers and normal shopkeepers. There was no distinction. He also said that these customers were his regular customers for 15 years that he made scissors regularly. The transaction only happened in cash.

“Do you now make agricultural implements as well?” –I asked.

“I used to make agricultural implements. I made them for four years. Then I went to Bahrain. There was no money here.”—Narasaiah said.

“Did you take payment in cash also for agricultural implements?”—I asked.

“Yes”—He said.

I asked him if the customers who purchased scissors from him, brought the raw materials for him. He said that he had go purchase the required amount of iron and charcoal from Jagtial. The iron scrap used for scissor making is of the same quality and type as the one needed for agricultural implements.

I asked him about his apprenticeship days again. Narasaiah said that he and his brother were among a group of five apprentices. All of them learnt the work of scissor making in one year. Then they can either leave or keep on working in the workshop. For apprenticeship, they had to pay Rs. 700 per month to the master. He and his brother continued to work in the workshop under their master V. Srimaiya for ten years.

He asked his wife to bring a smooth disk from the workshop. Narasaiah explained that this is the most item that they need for scissor making. They had to make it themselves.

The disc is used to manually sharpen and twist the scissor blades to precision. This disk is made by mixing oil, lac and a special kind of sand from Delhi. He said that it takes a lot of time to make this disk. It took him ten years.

I asked him what kind of scissors he used to manufacture. Narasaiah said that he manufactured scissors for domestic use, scissors for weavers and barbers and also for tobacco cutting. I asked him again if he and his brother were the only one in the village to take up scissor making. I needed to be absolutely sure about this.

“I am the only one with my brother who made scissors. There was no work in the village. No one was doing scissor making too. There was demand for this. So we learnt and started making it.”—Narasaiah explained.

“How long did you work in scissor making?”—I asked.

“I made scissors for 16 years. I stopped making as the demand reduced. The workers and the helpers reduced. Now there is an increased demand for the work. But there are no helpers to help me. It cannot be done alone.” —Narasaiah said.

I asked him why he needed helpers to make scissors.

“2 workers to forge the blank of the scissors. This is always a rough forging and how they learn first. The helpers who learn, prepare the blade. But the blades needs proper sharpening and delicate fixing. That is my job as an expert.” —Narasaiah explained.

He wanted to show how he made scissors. He offered to make rough quality scissors for us so that we have an idea of what he was talking about. I thanked him for this.

After recording him forge, we were offered another round of tea. I wanted to know about other blacksmiths in the village. I asked him if there is a *Sangam* of the blacksmiths in the

village since there are 21 families. Narasaiah said that there is a Veera Brahmendra Swamy temple in the village. there is a *Sangam* for 21 families of blacksmiths. There is a separate *Sangam* for the carpenters.

Narasaiah wanted to attend to a bunch of customers who were waiting. He asked us to wait and summoned the leader of the blacksmith *Sangam*, Hanumanlu, who would be better informed to talk to us about the community and the *Sangam*.

**INTERACTION 53****NAME:** Padakanti Hanumanlu**AGE:** 65**DESIGNATION:** Blacksmith, chief of local *Kammari Sangam***VILLAGE:** Kodimiyala, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 27 May 2014

Padakanti Hnumanlu, the 65 year old chief of the blacksmith *Sangam* appeared clutching a semi-derelict book in his hand. Kasarla Narasiah stood up in respect and his wife brought another chair out for him to sit. After Kasarla Narasiah had explained to him that we want to know about the *Sangam*, Padakanti Hanumanlu wanted to know what exactly we want to know.

I asked Hanumanlu about the blacksmith families in the village. I still wanted to make sure that there were no scissor manufacturers in the village other than Narasiah's family. Hanumanlu reiterated that there are 21 families of blacksmith in the village. He turned a few pages of the old book that he was carrying and showed us the current list of 21 member blacksmiths of the *Sangam*. He pointed out that the list included himself and his two sons. He also confirmed that Narasiah and his brother were the only ones in the village who knew and were famous for scissors manufacture. Further, Hanumanlu

explained that these 21 blacksmiths originally come from 9 different families, but they have 21 different houses.

“Who can become a member of the *Sangam*?” –I asked.

“To become a member, one has to be a male and of a minimum age of 18” –Hanumanlu said.

“Do they have to be working blacksmiths to be members?”—I asked.

“They do not have to do blacksmithing. But they must be from a *Kammari* house [community].”—Hanumanlu replied.

Hanumanlu explained that the members of the *Sangam* meet every month on the day of the *Amavasya*. The members deposit Rs. 50 each, as a contribution towards the *Sangam* fund. The meeting takes place at the Ellama temple at the edge of the village. I asked them why they do not meet at the Veera Brahmendra Swamy temple. “It is too far for us to travel”, Hanumanlu said.

I asked what the reason behind having a separate *Sangam* for each community was, since all of them are part of the *Viswakarma* caste. Hanumanlu said, “*Kammari* have a separate *Sangam* because we get a lower pay. .”

“How many bronze-smith and carpenter families are there in the village?”—I asked.

“Bronze-smith+Goldsmith [1 *Sangam*]= 20 families.

Carpenters= 100 families” –Hanumanlu said.

I asked him about the *Kammari Sangam*.



The name of the *Sangam* is *Manu Brahma Kamhari Sankhema* [*Sangam*]. The *Sangam* was formed on 26<sup>th</sup> August 2012 (according to the first meeting recorded in Hanumanlu's book). It was registered under the mentioned name in the year 2013. Hanumanlu explained that it took some time to get the *Sangam* registered. The *Sangam*, currently headed by Hanumanlu, looks after the interest of the blacksmith community of the village. They are responsible to take decisions regarding different aspects of work. They decide if a new blacksmith, who had come and settled in the village, would be allowed to work in blacksmithing in the village. If allowed, it is the responsibility of the *Sangam* to decide which clients would go to the new blacksmith. They also look after the fiscal side of the blacksmiths of the village.

"What is your opinion about *Shisha Kammaris*? Are they taking the works away from you?"—I asked.

"There is one *Shisha Kamhari* family here. Some farmers brought them from the town to get their small repairs done instantly. They pay him less than they have to pay us. There is not much work for us anyway due to the tractors."—Hanumanlu explained.

"Why do you think, the farmers prefer the *Shisha Kamhari* family over the *Kamhari*?"—I asked.

"*Kapu* [Reddy, landlords and rich farmer caste], brought the *Shisha Kamhari*. He is affecting our work. The Reddy's are high and we cannot talk to them. They do not want to give us crops anymore. They want to sell the crops in the market. *Shisha Kamhari* works for less money. Their [Reddys'] profit."—Haumanlu said, in an agitated tone.

I asked what festivals the blacksmiths celebrate every year. Hanumanlu said that the main festival they celebrate is *Ugadi* [Telugu New Year]. "We stop work 3 days before

*Ugadi*. We do not touch non-vegetarian. We worship our implements as *Pedda Devaru* [Big God]. Then we start work from the next day [after *Ugadi*].”—Hanumanlu explained.

“Where do you worship? Do you worship together in the Veera Brahmendra Swamy temple?”—I asked.

“We worship in our homes. The implements are Veera Brahmendra Swamy. We do not need to go to the temple. We clean the furnace and decorate it and worship it. We do not eat non-vegetarian and we start work after three days.”—Hanumanlu replied.

Hanumanlu further explained that the first implement they make after *Ugadi*, must be related to agriculture and has to be given to a farmer. The farmers normally come to their workshops to collect the implements. However, there is no set rule about it. The farmer may or may not come.

Hanumanlu said that he will have to get back to the grocery store that he owns because there is no one to look after it. If we wanted to know more about the *Sangam* then we can visit some other time. I asked if we can visit the following day. He said that the following day was *Amavasya* so they have their *Sangam* meeting. A good opportunity to participate in one of these meetings presented itself. I requested Hanumanlu to allow us to be present in the meeting. I promised that we will not impede the proceedings and will not ask questions during the meeting. I wanted to meet the members of the *Sangam* and observe how the meetings take place. Hanumanlu considered this for a few minutes and then said that he will speak to other members of the community about this. “Come tomorrow sharp at 10:30. We will start at 11:00. We will see if other members agree then”, Hanumanlu replied.

I thanked him for this and said that this will be a great opportunity for my research. I signed off asking if any member of the community takes up another craft then would that affect his membership in the *Sangam* or the status among the community.

“A carpenter will not normally take up blacksmithing. There is less pay in this. Same for bronze-smiths and goldsmiths. There is one blacksmith who does carpentry now. But since he is from a *Kammari* house, he belongs to our *Sangam*. If him or any other member is absent from the meeting, or go to any other *Sangam* meeting, then they have to pay a fine of Rs. 50.”—Hanumanlu explained in one breath.

“And your decision is final, since you are the president?”—I asked.

“Yes. If anyone does not follow my decision, then I go to the *Sarpanch* [headman] and then to the police.”—Hanumanlu explained.

Before leaving Narasiah’s workshop, Hanumanlu said that there is a big *Sangam* in Karimnagar city. He complained that they do not get any fund or help from that *Sangam*.

We thanked Hanumanlu for the information he provided and for allowing to be present at the *Sangam* meeting the next day.

**INTERACTION 54****NAME:** Members of *Kammari Sangam* at Kodimiyala**DESIGNATION:** Blacksmiths of Kodimiyala**VILLAGE:** Kodimiyala, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 28 May 2014

Hanumanlu called me last night to inform that the meeting will start earlier than scheduled. He asked us to be present at Narasiah's workshop by 9:30 instead of an hour later. We reached Kodimiyal at the appointed time after having breakfast at Kondagattu, mid-way between Jagtial and Kodimiyal. Soon the members of the *Sangam* started to treacle in around 9:45. From the inquisitive and dazed look on most of their faces, it was certain that they had not heard about us earlier and are genuinely surprised. I was worried that they will be worried enough to not allow us to be present at the meeting. Hanumanlu came and greeted us with a smile. He asked us to go to the Ellama temple and wait for them to come. He gave route directions to Mahesh.

We reached the temple, and found that the community members were waiting for us. We explained that we had misjudged the temple. Hanumanlu said that the community meeting there were the carpenters and blacksmiths have no space there. He also informed us that he had spoken to the members of the *Sangam*, who were present, and they had agreed to let us participate in the meeting. But there was one condition. Mahesh have to explain in front of all of them that we were not from the government and the

information collected, including the pictures, will only be used for academic purpose.

Mahesh had to give a speech introducing my research and we promised not to use our data for anything other than academic purpose. They wanted a copy of the research when published. I promised them a copy when I publish anything about it. I told them that the publications will most likely be in English. They did not seem to mind that and seemed content with the promise.

After this the meeting started at 10:13 with nine members of the *Sangam*. It took place in a newly constructed covered concrete platform in the Ellama temple complex. The treasurer, also a blacksmith, but presently a bank employee, brought out his money chest and a calculator. He called out the names of the blacksmiths who had taken money as loan from the *Sangam*. Those who were present (most of them who took out a loan were present, except two), were coming forward and returning 3-4 thousand rupees to the treasurer in cash, as he entered the amount in the record book (the same book that Hanumanlu had showed us the day before). Listening to their discussion, Mahesh said that the loan had to be repaid in instalment every month. The instalment depended on how much money they have taken out. However, I said that I will like to ask questions after the meeting was over. One other blacksmith joined in later and paid his dues. Most of them were paying Rs. 3150 back. Narasiah paid Rs. 6300. The other person, who was not present, was summoned over telephone.

After they had called him, the treasurer complained to Hanumanlu, the president, that most members are not interested in attending these meetings every month. They collect monthly subscriptions and instalments of loans in the meetings every month to lend money to any other member who might be in need. But since everyone was not attending

consistently, the system is not working as smoothly as it should. Hanumanlu nodded in agreement along with all the members who were present.

After the instalments were collected, the treasurer called out names of all the 21 members to in order to collect Rs. 50 per member as basic monthly fee from them. Although all of them were not present, most members who were absent had sent their subscription with a neighbour who was present. Hence most of the blacksmiths were paying Rs. 100 or Rs. 150. Hanumanlu's sons were not present too and he paid his own subscription along with his sons'—Rs. 150 in total.

A total of Rs. 800 was collected out of this process. 16 members have paid and remaining 5 members did not come and did not send their money. There was a discussion about the declining interest among the blacksmiths, about the *Sangam*. While the money collection was going on, one more member had joined. All the 11 members who were present voiced their displeasure about other members not attending the meetings. Hanumanlu regretted that the blacksmiths do not understand that the *Sangam* exist to serve their own interests as a community. In the last meeting at least 20 of the 21 sent their monthly contribution. But it was less in this meeting.

Next the treasurer raised the issue of not repaying the due instalment completely. The smith they had called up had not arrived yet. Hanumanlu called him once again but the person did not answer. Hanumanlu explained to Mahesh that they are talking about one blacksmith who did not pay Rs. 1000 that is due from him. Others reported that his neighbours, fellow blacksmiths had offered to lend him this money so that he can return it back to the *Sangam*. But he had refused. The members attending the meeting wanted Hanumanlu to take a decision about him. Hanumanlu considered this for some time and

said that he and some of the members will be going to his house and meet him in person to discuss this and sort the issue out. Everyone accepted this proposal.

One of the more vocal smiths in the gathering explained that the *Sangam* paid an one time incentive of Rs. 1000 to every blacksmith in the village to encourage them to attend the meetings every month, and participate in the activities of the *Sangam*. However, this blacksmith in question did not even accept the incentive money. He is the only blacksmith in Kodimiyal who had taken up carpentry and is now attending the *Sangam* meetings of the carpenters. “He does not care about us. He is paying more importance to the carpenters”—Narasiah complained. “He also discusses his financial matters with other communities but not our own community.”—another complained.

Hanumanlu said that they will discuss about this in detail during the next month’s meeting. All the others who were present complained again that this smith was not paying any importance to the blacksmith *Sangam*, and spoiling their efforts to keep the blacksmith community together. Hanuamanlu declared that he wants all the members to attend the next meeting to discuss this issue. He tried calling this smith again but he did not answer. Hanumanlu complained that this smith is so audacious that he would not answer their calls on the meeting days and other days too.

The blacksmiths were vocal against this smith, who did not want to join the *Sangam*. They said that this is a matter of community value and no one should be opposed to become a member. The treasurer tried to pacify the outrage and said that there will always be people who oppose something good that is being attempted. But that should not be seen as an impediment and the process should not be thwarted. The community as a whole should carry on with their good work for the wider interest of the community members. He said that if any member of a blacksmith family dies, then the *Sangam* funds pay Rs. 1000-



2000 to support the funeral rituals. “This is something good that we do. And it should not be stopped because someone opposed”, the treasurer said.

At the end of the meeting the treasurer returned 3000 rupees to the members who were present. I did not understand the reason behind this, and asked Mahesh to ask once the meeting is concluded. Those who received money had to sign a page acknowledging receipt in the record book.

After the meeting, they sent one of the younger members present, to get some soft drinks for the members. Hanumanlu said that they would normally have toddy, but they are having soft drinks in our honour today. I thanked him but said that I would not mind toddy either if we did not need to drive back to Jagtial.

Thums-up and Sprite arrived, along with plastic glasses. Everyone helped themselves. This was the end of the formal meeting. Now the members sat in a circle with their drink and chatted about village gossips and other trivial issues such as how one smith behaved after he was drunk (everybody laughed). Also how a certain person from a different community was doing after being initiated. This person had some psychological issues and villagers were concerned about his wellbeing.

After finishing their drinks and refilling, the treasurer gathered all the smiths together and discussed the balance sheet of the *Sangam* for that month. The *Sangam* savings in the present event, was Rs. 60,000. The *Sangam*, as the treasurer said, can pay any member a loan of Rs. 50,000 at present. But not more than that. He asked if anyone needs to loan that amount. None showed interest. The meeting concluded after this. I asked the treasurer if I could talk to him for a bit since I did not understand much of the financial dealings that went on. He agreed to speak and luckily he spoke decent English.

“When we started the *Sangam*, all of the 21 members had to contribute Rs. 500 to the common fund. This amounted to Rs. 10,500. That was our initial balance, which we must maintain all the time. On top of this, every month each member has to be Rs. 50 in the monthly meetings. So we target to raise Rs. 1050 every month and add that to the community fund. This income is not consistent though, because some people do not attend. This month’s collection was Rs. 800, rather low. From this collection, we pay Rs. 500 to the priest at Veera Brahmendra Swamy temple [where we initially waited], as his monthly salary.” –He explained.

“So the other *Viswakarma* communities do not pay for maintenance of the priest or the temple?”—I asked

“The carpenters also pay. The bronze-smiths and the goldsmiths pay some money for the temple. This year we paid Rs. 2800 for the maintenance of the temple” –He said.

“So why do the blacksmiths not meet there?” –I asked.

“Because the carpenters have taken the foot of the temple and the goldsmiths and bronze-smith *Sangam* meets in the shrine. We do not have any other space. So we chose this.” –He explained.

I asked him about the money that was given to all the present blacksmiths at the end of the meeting.

“Each member has two borrowing chits. Each chit is worth Rs. 3000. Every month we pay Rs. 3000 to all the members who are present in the meeting. If someone needs more then they can use their second chit as well. If he needs more than 6000 rupees, then he can borrow chits from other blacksmiths. But their consent is necessary. Every month, when

they receive money, there has to be a guarantor for each of them and both of them has to sign the paper. At the start of the meeting next month, they have to return the principal amount of Rs. 3000 or Rs. 6000 and an interest of 5% above that amount The purpose of this is to support the community members to start their own business, repay loans taken from the farmers etc.”—He explained.

We thanked everyone and shook hands with them before leaving. Hanumanlu reminded me of my promises and I assured them I will keep them and send them a copy of my work when it gets published.

Just before we left, one middle-aged blacksmith came up and said that we must go to Dharmayapeta, which was a couple of villages away, in the jungle. He heard that there is *chityam* there and we may find people who know about smelting. I thanked him and asked Mahesh to get the directions from him. We thanked everyone again and left Kodimiyal for Dharmayapeta at 11:50 am.

**INTERACTION 55****NAME:** Krishnamurthi**AGE:** 43**DESIGNATION:** Goldsmith, owner, priest and caretaker of Mammayee Temple**VILLAGE:** Pedda Kalvala, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 30 May 2014

On our way back from the deserted Mammayee temple at Chinna Kalvala, we asked who the priest of the temple was. The carpenters, only *Viswakarma* community in Chinna Kalvala, said that the priest and the owner of the temple was Krishnamurthi, a goldsmith residing in neighbouring Pedda Kalvala village. The carpenters did not visit the temple at all and did not know anything about the temple or the goddess. Following their directions, we reached Krishnamurthi's house in Pedda Kalvala village. His mother came out and asked why we needed to talk to his son. After describing our purpose we were seated in the back porch of the house. Krishnamurthi joined us after a few minutes.

I told him that I wanted to learn about the temple and the goddess. Krishnamurthi agreed to tell me as much as he knew. He said that his father, who had died a year back, knew better about the spiritual aspects of the goddess, but still he will try to help us.

"There are three families who maintain this temple. One of them is in Karimnagar and the other two, including my family, live in this village."—Krishnamurthi said.

“Are all these goldsmith families?”—I asked.

“Yes, we are all goldsmiths. Other communities go to the temple but they do not do anything for their upkeep.”—he said.

“How old is the temple?”—I asked.

“The temple is 200 years old. My grandfather found the idol of the goddess in the place where the temple was. He immediately recognized Her as Goddess Mammayee. After that he collected funds from the village to construct this temple.”—Krishnamurthi said.

“What about other old idols in the courtyard of the temple? Did he find them too?”—I asked

“No. He collected them from other nearby villages and placed them there. That is as far as I know. He only found the idol of the Goddess.”—Krishnamurthi replied.

“Is the temple only visited by the *Viswakarma* community? Are other communities allowed to workshop there?”—I asked.

“Everyone can visit. But we have a four day festival in April for *Ugadi*. People only visit the temple then. No one else, not even the *Viswakarma* visit it I think for rest of the time. I go there every day to do daily worship. But that’s all. People are not interested. It is a *Viswabrahmin* temple, but no *Viswabrahmin*, except my family cares about it.”—Krishnamurthi complained.

I asked how many *Viswakarma* families were there in the village of Pedda Kalvala.

Krishnamurthi gave me the following list:

1. Carpenters: 10 houses

2. Blacksmiths: 05 houses
3. Goldsmiths: 04 houses

He again emphasized that none of these families, except his, and occasionally another goldsmith family, are involved in daily worship and maintenance of the temple.

I told Krishnamurthi that we have visited quite a few Veera Brahmendra Swamy temples during this and previous field seasons. It appeared that those temples were well taken care of by the entire *Viswakarma* community. I asked what the difference was between the cult of Veera Brahmendra Swamy and Mammayee, and asked about his opinion on why the Mammayee temples in most places [that we have seen since 2010], represent a dying tradition.

“For Veera Brahmendra Swamy temples, all the *Viswabrahmin* families take active interest to form the temple. This brings all of them together. I do not know about other Mammayee temples, but in case of this Mammayee temple, it is my family who had found this idol and expressed the interest to establish the idol in this temple. So the general feeling is that this is our personal family temple and we must maintain and develop the temple ourselves. So none helps in upkeep of the temple and none visits the temple apart from the four days of festival. There is a mother temple [temple of Mammayee] in Mumbai. It is a big temple. Another big temple in Siddipet. In Jangaon of Manchherial, they constructed a new Mammayee temple very recently.”—Krishnamurthi explained.

“Do you collect fund from the *Viswakarma* families in the village to conduct the *Ugadi* festival?”—I asked.

“No. They will not give money. The big rice mill on the opposite side bank of the stream from the temple that you saw, they give a lot of money for the festival. Rest I have to spend myself to arrange for the Puja.”—He said.

“Can you tell me more about the festival?”—I asked.

“The festival starts with Ganapathi [god of wealth] Puja. There is *mangalarathi* [worshipping the goddess at dawn]. We have to keep our work implements in the temple. There is no work these 4 days. The implements are also worshipped. We have to fast for three days.”—Krishnamurthi said.

“Are other people from the village *Viswakarma* allowed to keep their implements for worship in the shrine?”—I asked.

“Yes they can if they want to. They will have to fast for 3 days then too. But most people prefer to worship the implements in their home shrines.”—Krishnamurthi said.

I asked him if there was a formal *Viswakarma Sangam* in Pedda Kalvala. He said that there is a *Sangam*, which meet irregularly when required. But most cases of conflict among the community members are solved very informally on personal level. If they cannot solve themselves, then the *Sangam* is convened and if the *Sangam* fails, the *Sarpanch* (village headman) deals with the issue.

We thanked Krishnamurthi for helping us with the information. After having tea with him, we left for Jagtial.



**INTERACTION 56****NAME:** Nutti Bapu**AGE:** 65**DESIGNATION:** Blacksmith**VILLAGE:** Jangam, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 2 June 2014

The new Mammayee temple in Jangaon was locked. We asked in the adjacent houses about the priest. We were told that the priest had gone to Hyderabad and will not be back in a week. They directed us to the house of a senior blacksmith, Nutti Bapu, who might be able to give us information about the temple and the local *Viswakarma* community.

Bapu lives in a very well decorated house which speaks about the affluence of his family. The anvil of his unused smithy was still visible under a thick bush in the in one corner of the courtyard. Bapu's grandson greeted us at the gate and after Mahesh described the purpose of our visit, we were seated at the courtyard as the grandson went inside to fetch Bapu.

"I stopped working as a blacksmith 10 years ago. I started working when I was 18, made implements for the farmers. But now there is no work at all because of the use of tractors. I had 50 houses of farmers. But nothing now. Nothing but very occasional repairs. Now there is the market and there are tractors."—Bapu said.

I asked him about the Mammayee temple. Bapu said that the temple was constructed 5 years back. The idol of the goddess was always there but it was in the open, so the village *Viswakarma* decided to construct the temple by pooling together some funds. He also said that one village goldsmith looks after the upkeep of the temple at present. He and other *Viswakarma* families visit the temple during the “*Ugadi puja*” [Telugu New Year Festival]. He also said that the goddess was not Mammayee, but Kamakshi. Kamakshi protects the smiths from danger and financial losses. “But unfortunately there is no money in blacksmithing anymore in this or other villages.”—Bapu said.

“How much money or grain did each farmer house pay you when you forged implements for them in the past?”—I asked

“Each house gave me 24 kg of rice. I did not work for the cotton farmers though. They cannot give grains so they never came. They went to the *Shisha Kammaris* because they take money, less amount of money. And now everyone goes to them if they need anything repaired or welded. They do it for cheap.”—Bapu complained.

“How many blacksmith families are there in the village?”—I asked.

“There were 5 houses earlier. But now only my family remain in the village. Others have left a few years back when work became rare.”—Bapu said.

“What about other *Viswakarma* houses?”—I asked.

“There 7 goldsmith houses and 5 carpenter houses. Some of these carpenters came from outside recently.”—Bapu said.

I asked him if there is a *Viswakarma Sangam* in Jangaon. He said that there is a large Mandal level *Sangam* in Godavarikhani town; however, they do not interfere with the small issues of village *Viswakarma*.

We thanked Bapu for the information, wished him well and left.

## INTERACTION 57

**NAME:** Kalluri Ramesh & Kalluri Sanjeev

**AGE:** 42 & 40

**DESIGNATION:** *Mudda Kammaris*, chiefs of local *Kammari Sangam*

**VILLAGE:** Rechapally (Rahisapally), Karimnagar, Telangana

**INTERACTION TYPE:** Informal, loosely structured

**LANGUAGE:** Telugu/English

**DATE:** 03 June 2014

We got references to one Kalluri Lachhanna of Rahisapally/Rahisapally/Rechapally in some of our previous interactions with *Mudda Kammaris* from different villages. On arriving at Rechapally, we asked in the village shops about the house of Lachhanna. They told us that Lachhanna had passed away several years back but his two sons are the chiefs of among the local blacksmiths and we can go and talk to them. We met Kalluri Ramesh and Kalluri Sanjeev in their smithy on the front yard of their house. They live in two separate houses but they are next to each other. There are two smithies in adjacent to each other.

After Mahesh had explained about my research, Ramesh and Sanjeev expressed their willingness to help as much as they can. They invited us to the living room of Ramesh's house where we started to talk.

"There are 20 blacksmith families in the village.

16 houses of Kalluri

2 houses of Maddalapally

2 houses of Kothapally"—Ramesh said.

"And have these families always lived in this village?"—I asked.

"All of us live here for generations."—Sanjeev said.

I asked them if his family had any relations among the *Mudda Kammaris* in Dasturabad area. Ramesh said that there may be some distant relatives in Dasturabad, but he was not sure of that. While they readily confessed their *Mudda Kammaris* status, they said that they do not know much about *Mudda Kammaris*. "We just know that our ancestors made *Mudda*. That is why we are called *Mudda Kammaris*. *Mudda* was made in the old village of Uppumadugu. There is a very large *Chityam* heap there."—Ramesh said.

I asked if all the twenty smith houses in the village worked as blacksmiths or they have moved into any other profession.

"The 20 houses are still working in our ancestral work. But now there is not much money in it. Very less work. So most of us work as carpenters as well."—Ramesh replied.

"Do you forge implements for only the farmers or other communities too?"—I asked.

“Only farmers. No other community. We make implement for the farmers in the village as well as Gond farmers who live in the neighbouring villages but do not have a blacksmith in their village. We also repair when needed. The orders started coming already and we will start full time work after next 15 days.”—Sanjeev and Ramesh explained.

“How many families of farmers do you serve?”—I asked.

“Each of blacksmith has minimum 20 and maximum 35 houses of farmers. Earlier there used to be 100 farmer houses per family. There was a lot of work then. But now it reduced.”—Ramesh explained.

“And do you get paid in grains or money?”—I asked.

“We accept both. Depends on the farmer. If someone pays in grain then we take 1 quintal of rice or corn after each harvest, i.e., twice every year. If they pay cash, they just pay Rs. 1000 per house in total every year with 500 rupees instalment after each harvest.”—Sanjeev said.

“In the past, the farmers preferred to pay in crop. But now they sell the crop in the market and get more money. So they don’t want to give that to us. They prefer to pay us in cash. But we want grain because the amount of money is very less for us.”—Ramesh stated.

“What do you do with the crop they pay? Do you keep all for yourself?”—I asked.

“We get the crops unhusked from a nearby ricemill, then keep as much as we need for the family and sell the rest in the market. We need money to buy other things. So we use the money from selling the crops.”—Ramesh said.

“Do these farmer families come to you and other blacksmiths for generations?”—I asked.

“My father had 50 houses of farmers. When he died we divided the houses equally among us. Their sons also come to us and that’s how our clients increase. The farmers are not generally allowed to change their blacksmith. If they wanted to change on to any other blacksmith, then they have to take permission from our *Kammari Sangam*. They are normally asked for an explanation and a fine of Rs. 1000 as compensation to the blacksmith before he is allowed to change.”—Ramesh explained

I wanted to know more about the *Sangam*.

Ramesh explained that the *Sangam* is only for the blacksmith and for the carpenter community. There is a separate *Sangam* for the goldsmith and bronzesmith families of Rechapally. He said that there are 20 houses of goldsmiths and 2 houses of bronzesmiths in the village. I asked him why there are two separate *Sangams* since all of them are from the same community. Ramesh said that the goldsmiths and the bronzesmiths did not like to join their *Sangam* so they created their own. There was a combined *Sangam* in the past, but that was defunct because of lack of agreement and clash of interests. Therefore there was a split.

Further, Ramesh said, “The present *Sangam* was started 12 years back. We have our own land where we meet every month on the day of *Amavasya* to discuss our issues and take collective decisions. The *Sangam* also makes regulations about how long a person can work. A blacksmith and a carpenter should not strictly work after 8 pm. If they do, they will have to pay a fine. If they charge less money than the traditional amount from their clients, in order to lure clients from other blacksmiths/carpenters, then they will have to pay a fine.

We also give loans to the members from the *Sangam*. Every month each member has to contribute Rs. 50 in the *Sangam* fund. Each member can ask for a loan upto a maximum amount of Rs. 20,000 at a time. Any amount taken out as a loan is charged with 2% interest per month and in each meeting the members who had taken loan will have to present the principal amount and the interest amount in front of the treasurer. The treasure collects the interest amount for the month and returns the principal amount to the members. If anyone fails to attend the meeting without notice or cannot present the principal and the interest amount to the treasurer, then he is fined in between Rs. 500-1000 depending on the amount that is due from him.”

I asked Ramesh if someone works as a blacksmith and as a carpenter at the same time, was he allowed having different clients than traditional blacksmithing clients. Ramesh explained that the clients can be different for these two trades; however, normally the same families seek his services in both capacities. The payment, however, would be separate for carpentry. The payment amount, however, was the same as blacksmithing.

“Now there are tractors. So most of our old farmer clients have adopted that. They do not come to us anymore. There are 6 Gond villages nearby. They cannot afford tractors. So they come to us for their implements. I have 10 Gond families. They pay us in crop too, which works better for us than cash.”—Ramesh said.

The interview finished over a cup of tea. We thanked Ramesh and Sanjeev for their time and left for our next destination.



**INTERACTION 58****NAME:** Chattapally Bhumaiah**AGE:** 75**DESIGNATION:** *Mudda Kammari***VILLAGE:** Battapally, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 03 June 2014

During our survey in 2010, a large heap of slag was identified in Battapally. A local blacksmith was interviewed, who had shown some materials made of smelted iron. The interview was short and I wanted to visit the village again to speak to the smith in detail about his memory of the technology. This brought us to the house of Chattapally Bhumaiah, who lives in a thatched house near the slag heap in Battapally. Bhumaiah readily agreed to speak to us about the technology and we started talking sitting under the thatched front porch of his hut.

“My father and grandfather were all *Mudda Kammari*. They prepared *mudda* in this village. There is still a part of the mound there. I have seen them prepare it.”—Bhumaiah said.

“Can you describe the procedure for us please?”—I asked.

“I did not actually see the procedure of making *mudda* from *wuske*. But I saw my father and grandfather collect small pieces of *mudda* and melt them in a *kolimi* to make a bigger

one piece *mudda* from them. They did that very often in here. One bag of *boggu* was needed to make 20-30 kgs of this kind of *mudda*. They collected whatever pieces of iron was left with them after their blacksmith work. Then they put all of them together in the *kolimi* and used two hand pressed *tittulu* to send the air and increase the heat to melt the iron together.

The *kolimi* was this big (showed by hand signs) [3-4 feet]. First they put a portion of the *boggu* in the bottom of the furnace. Then they place the pieces of iron in an earthen pot and placed the pot over the *boggu* inside the furnace. Finally they added rest of the *boggu* on top of the pot and started the smelting process. We watched in wonder because like honey and water cannot mix together, the *boggu* will always stay separate from the *mudda*. All those small pieces of iron were converted into one liquid form. They will then take the pot full of melted iron out and cool it and it will solidify into one *mudda*. This was magical to us in childhood.”—Bhumaiah described in one breath.

“What about *chityam*?”—I asked.

“*Chityam* comes out from the bottom in liquid form and then solidifies into those piles.”—Bhumaiah replied pointing at the slag heap.

I asked him if a furnace was reused or they needed to break the furnace entirely to bring the pot of molten iron out. Bhumaiah said that one furnace can only be used twice. They made repairs after each “smelt”. He also said that there are more “smelting” areas in the forest where slag could be found. I asked him if he would accompany us on our bike and show us the places. His wife refused to let him come with us.

“In the past *Mudda Kammaris* were not allowed to marry normal *Kammaris* or *Wadlolu* (carpenters). Because we smelted iron, which is laborious, and physically demanding,

they thought that we are impure and of a low status like labourers. But now everything got mixed.”—Bhumaiah said.

He asked where we were coming from. We said that we had just visited Kalluri Ramesh, Kalluri Lachhanna’s son in Rechapally. Bhumaiah said that Lachhanna was his brother-in-law. “Ramesh and Sanjeev are of this generation. They don’t know anything.”—Bhumaiah said.

Then Bhumaiah took us to the slag heap adjacent to his house. We have explored this heap and collected samples from here in 2010. The heap is adjacent to a dry old tank excavation.

“Both types of smelting happened here. The actual making *mudda* from *wuske*, and the one that I have just described. The large *chityam* are from actual type of smelting. They have recently removed the *chityams* for excavating a well.”—Bhumaiah explained.

I asked Bhumaiah if he had heard anything from his parents or grandparents about the “actual type of smelting”. Bhumaiah said that he had and started to narrate what he had heard.

“For one *kolimi*, six people were required. Not all of them were *Mudda Kammaris*. 2-3 of them were experienced *Mudda Kammaris* and rest were labourers from various communities. Among them:

2 were needed for bellows

2 for filling the furnace with *boggu* and *wuske*

2 for overseeing the work.

Normally the last two were experienced *Mudda Kammaris* who directed others about what to do. My father and grandfather did this.

The smelting went on for 5 hours. They started at 3 am and it was finished by 8 am, before the sun was high and hot. After that the farmers came to purchase the *muddas* for cash and carried them to their blacksmiths to get them forged. The remaining *muddas* were sold to the *Sahukars* who in turn sold them in the markets.”

“So the farmers did not come to the *Mudda Kammaris* for forging new implements?”—I asked.

“Why not. Those houses who were the clients of my parents and grandparents, they came to us. They got their implements forged and paid rice to them like they always do.”—Bhumaiah explained.

“Do you know where they collected the *wuske* from?”—I asked.

“It was brought in bullock carts from Shekalla Gutta [Shekalla hill, behind Shekalla village]. That was the only place where this *wuske* was found.”—Bhumaiah said.

While walking back from the slag heap Bhumaiah expressed his regret about the loss of these old days when blacksmithing was profitable. “There is nothing to look forward to now. I just manage to earn Rs. 50 every day. Some days I do not earn anything at all. I have to depend on my sons’ income. Two of my sons are in Dubai. They send me money every month. I have two daughters and I had given them in marriage to Nerella and Mallyala.”—Bhumaiah said.

Bhumaiah was getting late for lunch. So we thanked him for his help and left for Jagtial.

**INTERACTION 59****NAME:** Ramakanty Narasaiah**AGE:** 60**DESIGNATION:** Blacksmith, member of the local *Sangam***VILLAGE:** Kothapally, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 04 June 2014

We met Narasaiah in front of his house in the village of Kothapally. We had asked in the shops at the entrance of the village about the seniormost blacksmith and they all directed us to the house of Ramakanty Narsaiah. Mahesh explained him about my research and he was willing to speak to us about his work.

Narasaiah is from a *Kammari* family who had started working as a blacksmith when he was 14. “I’ve worked for more than 40 years since then. But now there is no work for last 10-15 years because of the use of tractors”—Narasaiah explained.

“How many farmer houses did you work for?”—I asked.

“60 houses. They still come to me if they need something urgently repaired. But other than that they go to the *Shisha Kammaris*. They work for less amount of money. They pay 20-30 rupees per repair to *Shisha Kammaris*”—Narasaiah said.

“How much did they pay you in the past?”—I asked.

“They paid 4 *Kunchas* or 36 kg of rice to me, and 1 *Kuncha* or 9 kg corn every year.”—He said.

“This was paid once or twice a year?”—I asked.

“Two times. In December after the harvest they paid me the 36 kg of rice and then after the next harvest they paid the corn in August.”—Narasaiah replied.

I asked how many blacksmith families were there in the village. Narasaiah said that there are 5 blacksmith families, among whom 4 have his own surname (Ramakanty) and 1 has the surname of Mogoloju. “The families with the same *inti-peru* [surname/house name], are always related to one another”—Narasaiah explained.

“Do the village blacksmiths do carpentry as well since blacksmithing is not financially productive anymore?”—I asked.

“We do not do carpenter work. All of us do occasional repairs and most of the present generation work as labourers in welding shops because repair work is rare. I have two sons, both of whom work in a welding shop in Karimnagar city.”—Narasaiah replied.

“What other *Viswakarma* families are there in the village?”—I asked.

“There are:

40 Carpenters

5 Blacksmiths

15 Goldsmiths

We also have a *Sangam*, and there is a Veera Brahmendra Swamy temple on the other side of the main road that goes to Karimnagar.”—Narasaiah said.

“Are all these communities come under the same *Sangam*?”—I asked.

“Yes, there is only one *Sangam*. But no one shows interest in it. We have registered our *Sangam* with the government, but the members hardly meet. Mostly the carpenters and blacksmiths would meet during *Amavasya*. We have a priest for our temple who is a carpenter. We also try to organize a small festival in the temple during *Ugadi*.”—Narasaiah explained.

“Are *Shisha Kammaris* part of this *Sangam* too?”—I asked because I wanted to know what he thought about the *Shisha Kammaris*.

“They are different those *Shisha Kammaris*. They are not *Viswabrahmin*. They just work for money. There is a permanent *Shisha Kammari* family in the village. We wanted to persuade them to leave the village so that we have more work. But they refused. They said they do the work for money and here they have a lot of work, so they will not leave. The farmers also backed them because they get their work done for cheap there.”—Narasaiah complained.

We thanked Narasaiah for talking to us and left Kothapally after the interview.



**INTERACTION 60****NAME:** Chattapally Bhumaiah**AGE:** 75**DESIGNATION:** *Mudda Kammari***VILLAGE:** Potharam, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 10 June 2014

I wanted to talk to Bhumaiah once again because I had forgotten to ask him about charcoal making in our previous interaction. On our way to Potharam, we bumped into Chatapally Bhumaiah once again at Potharam, the next village from his ancestral Battapally. He said that he was supervising the construction of a house for one of his sons who is in Dubai. Mahesh explained that we wanted to know about charcoal making that was required smelting. He invited us to sit under the shade of a tree in the construction site and began describing the process from his memory.

“They used to cut *Sandra* trees in the jungle up there on those hills [pointed towards a low teak forest covered hill a few miles away]. They made 10 bags of charcoal at one time. After cutting the wood, a heap was made and it was covered with sand and dry leaves. Fire was lit at the bottom of the heap. Later the the fire was doused with sand. It took 24 hours to make one pile of *boggu*.”—Bhumaiah described.

“Did the *Mudda Kammaris* make charcoal themselves, or they had labourers who made it for them?”—I asked.

“The *Nayakas* made charcoal on the hills. They are tribals. They made charcoal for my father and grandfather. They bought 10 bags of charcoal from the *Nayakas*. 1 bag contained 50 kg and costed Rs. 5. They needed 50 Kg of charcoal per smelt.”—Narasaiah said.

“If we went to the hills, can we meet the *Nayakas* there?”—I asked.

“They are not there anymore. They don’t make charcoal now. Everyone gets charcoal from the markets in Jagtial these days. Charcoal is now made in factories. So no one needs *Nayakas*.”—Narasaiah replied.

“How much *wuske* was required?”—I asked.

“I do not know that. But I know that the labourers used to dig black *wuske* from Shekallah Gutta and brought them to my village in sacks by a bullock cart. I think you should go and talk to Desaradi Bhumaiah of Gopulapur. He is a very senior and old *Mudda Kamhari* who did the smelting himself. He can tell you more about it.”—Narasaiah said.

We thanked him for the information and for directing us to Desaradi Bhumaiah. We asked him road directions to Gopulapur and left.

**INTERACTION 61****NAME:** Desaradi Bhumaiah**AGE:** 83**DESIGNATION:** *Mudda Kammari***VILLAGE:** Gopulapur, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 10 June 2014

We found Bhumaiah in his house at Gopulapur. He was hard of hearing so we explained the objectives of my research to his son, who had then relayed it to Bhumaiah. Bhumaiah agreed to speak to us, and his son offered to help to aid Bhumaiah understand the questions.

“My father used to make *mudda*. He collected the *wuske* from Shekalla Gutta and brought that to the village by bullock carts. Then they made *mudda* out of it in an open area outside the village.”—Bhumaiah said.

“When did the smelting take place? Which time of the year I mean.”—I asked.

“They did it in winter, and also in summer. They did it whenever they needed iron. They got the *wuske* digging the stream near Shekalla Gutta.”—Bhumaiah replied.

“Who brought the ores?”—I asked.

“4 people from our community went to the hill to get the *wuske*. They filtered the dirt away in the flowing water of the stream and got pure *wuske*. 50 kg of *wuske* was needed every time for making *mudda*.”—Bhumaiah said.

“What about charcoal?”—I asked.

“That was brought from Battapally and Velugonda. The *Nayakas* made charcoal with teak wood. They do not use water to douse the fire. Those charcoal are not good. They use sand to douse the fire, which is good for use in smelting.”—Bhumaiah said.

At this point Bhumaiah ignored all the questions and carried on explaining in his own pace.

“They used buffalo skin for bellows. The *kolimi* was 4 feet high. There were 2 bellows. Each bellow was operated by one person with hand. They needed 8 people per smelt. 4 people worked with the bellows. They were *Madigas* since blacksmiths would not touch the bellows. Buffalo skin you see. Then there were 4 *Mudda Kammaris*. We made the furnace from clay that we got from nearby pond. Charcoal first, then *wuske* and then charcoal again on top of it. After it was done, *Sahukars* took our *mudda* and paid in grain.

“The smelting started in the evening and finished by six in the morning. They used to keep checking if the *mudda* is forming properly. They had a hole in the furnace to do that, where they also poked the fire. It was all brightly lit in the dark. After the smelt, they brought the *mudda* out. It was still hot, so everyone hammered it to get rid of the *chityam*. Then they broke the *mudda* into two pieces with an iron ploughshare.”—Bhumaiah stopped.

“Did they need to make new furnaces for every smelt?”—I asked.

“No. Just change the tuyeres, do minor repairs and it is ready for the next batch.”—

Bhumaiah said.

“Where did the refining process take place?”—I asked.

“They took the *mudda* out and placed it in a small hearth beside the big furnace. They hammered it repeatedly and then split it into two.”—Bhumaiah said.

“And then they sold all the iron to the *Sahukars*? Did the farmers buy some too?”—I asked.

“We gave all to the *Sahukar*. If farmers need iron they buy it from the *Sahukar*. They gave us crops in exchange of the *mudda*.”—Bhumaiah said.

“Did the *Mudda Kammaris* work as regular blacksmiths?”—I asked.

“Yes. I had 15 houses of farmers who came to me every year. They gave me 3 *kunchas* of paddy every year. Some gave me corns. Now 2 houses of *Mudda Kammaris* work for the farmers. Others taken to carpentry. Many left because there is no smelting. My fathers brothers are in Dasturabad. There was good smelting there too.”—Bhumaiah said.

I asked him if he can remember the names of his father’s brothers. He said he had forgotten.

I asked him that those farmers who came to him, or other *Mudda Kammaris*, did they buy the *mudda* directly from them. He said that the farmers went to the *Sahukars* to buy *mudda* and then brought them back to them to get them forged into agricultural implements. Bhumaiah was tiring at this point. We thanked him for his help and wished him well as we left.

**INTERACTION 62****NAME:** Mattela Rajeshwar**AGE:** 65**DESIGNATION:** Blacksmith**VILLAGE:** Ibrahimpatnam, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 12 June 2014

We visited Ibrahimpatnam during 2010 and found good evidence of crucible steel production in the village. Dr. Jaikishan also conducted an experimental crucible steel making with the help of senior smiths of the village and suggested that the smiths here still have some knowledge about the technology of crucible steel production. The senior most smith of the village, Pedda Gangaram, had succumbed to cancer earlier this year so we spoke to the current senior most smiths, Mattela Rajeshwar, who is related to Pedda Gangaram and lives adjacent to his house.

I asked him about the experimental smelting. Rajeshwar said that they did not have any knowledge about steel making, but Dr. Jaikishan had told them how that was done in the past and asked them if they will help him set the experiment up. They agreed to help and Dr. Jaikishan paid good money for all of this. Rajeshwar said that they did not have any idea about the equipments or the type of furnace. “Kishan sir” had instructed them about how to make a furnace and brought the equipments himself. He told them how to make

the tuyeres and the crucibles, and then they tried to smelt in the way he told them to. But unfortunately it failed. “But that was good money and it was a new experience for us. We enjoyed it. Kishan sir even wrote a book with our pictures on it [he went in to bring Dr. Jaikishan’s telugu book out]. See this is Mattela Pedda Gangaram, who died of cancer. This is us making the furnace and this is me.”—Rajeshwar said.

“Do you know when steel making stopped?”—I asked.

“It probably stopped a long time back. Longer than our grandfather’s time. The Mammayee temple area was full of crucibles and slag. We cleared all of it to expand the temple.”—Rajeshwar explained.

“How many years are you working as a blacksmith?”—I asked.

“All my forefathers were blacksmiths. I am working since I was 20 years old.”—he said.

“How many blacksmith houses are there in the village?”—I asked.

“There are six houses of Mattela and 4 houses of Kodimiyala. But only 4 houses do this work at present. You are talking about steel making? I am sure no one in the village knows how our ancestors did it.”—Rajeshwar said.

“Any other *Viswakarma* families in the village?”—I asked.

“There are 4 goldsmiths. Some blacksmiths have started learning goldsmithing. There are also 20 carpenters and 10 bronzesmiths.”—he replied.

“Do the blacksmith work as carpenters too?”—I asked.

“No. We do not do that here. *Viswabrahmin* are five brothers.

## 1. Sculptors



2. Blacksmiths
3. Carpenters
4. Bronzsmiths
5. Gold and silversmiths ”—Rajeshwar said.

I asked if all the communities participate in worship and upkeep in the Mammayee temple.

He said that only blacksmiths and carpenters take care of the temple and can be priests.

“Other *Viswabrahmin* can come. But they do not come normally.”—Rajeshwar said.

“Is there a *Viswabrahmin Sangam* in the village?”—I asked.

“There is a *Sangam* and we meet on every *Amavasya* morning in the Mammayee temple.

But this *Sangam* is for blacksmiths and carpenters only. Other communities are not allowed.”—Rajeshwar said.

I asked him if he knew any other villages nearby where there were evidences of smelting or crucible steel making. He gave us the following list, reading out of Dr. Jaikishan's book:

1. Godur
2. Timapur
3. Yamapur
4. Vimalakurthi
5. Mulrampur
6. Komati Kondapur
7. Yerrapur
8. Mammakapeta
9. Fakir Kondapur
10. Banda Lingapur

## 11. Dabba.

We thanked him for the information and asked directions for them since I wanted to visit these places in the next few days to see if there are people who retain some memory about crucible steel making. Despite searching in most of these locations, we failed to find someone who remembered. The blacksmiths in most of these villages had migrated elsewhere due to lack of work.

**INTERACTION 63****NAME:** Pawar Shankar & Pawar Santhosh**AGE:** 50 & 23**DESIGNATION:** *Shisha Kammari***VILLAGE:** Dharmapuri, Karimnagar, Telangana**INTERACTION TYPE:** Informal, loosely structured**LANGUAGE:** Telugu/English**DATE:** 20 June 2014

We met Shankar and his son Santhosh at their workshop cum shack in Dharmapuri.

Shankar came to Dharmapuri with his father 25 years back from Tosham, near Hatnur in Adilabad district.

“Why did he move here?”—I asked.

“My father came in search of work. In our area there were too many blacksmiths but there was no work. Someone told him that there is work here. My son is born and brought up here in Dharmapuri and now doing the work of my ancestors.”—Shankar said.

“Are there other families in your ancestral place who have shifted here in search of work?”—I asked.

“There are a lot of people all over here till Manchherial and Karimnagar. There are a few acquaintances in Jagtial. Nagesh Chauhan and others. Many families came here 50 years

back. We were late commers so we did not get any space in bigger towns.”—Shankar said.

I told Shankar that I know Nagesh and had met him a few times. Shankar and Santhosh both smiled at this.

“So you are not from the *Viswakarma* community?”—I asked.

“No. We are ST (Scheduled Tribes), from Lambada community in Adilabad. We are the real smiths.”—Santhosh said.

“Who are your clients?”—I asked.

“We work for everyone. We work daily and if need is there, we can work for 24 hours. The farmers come to us to get things made. They pay us based on what they get done. Not the crops like the other blacksmiths [*Viswakarma*] want from them. These other smiths are not doing a good job. They are not sincere so the farmers prefer us.”—Santhosh said.

“Do the farmers bring iron and charcoal to you for the implements they need forged?”—I asked.

“Sometimes they do. If they need a specific kind of iron. But most of the time I provide them with iron. We buy charcoal from the town itself. They do not need to bring that too.”—Shankar said.

“What is the busies period of work in a year?”—I asked

“Now, just before and after the rains. June, July and August.”—Shankar said.

“What do you do when there is less work?”—I asked.

“We go to many villages and sell our implements in village market. We also go to hardware stores that we know and ask if they want us to make anything for them. We travel a lot so that we have something to do all year.”—Shankar replied.

“How much do you charge for one ploughshare?”—I asked.

“If it is new then Rs. 300. But if it just a repair, or welding a new tip on the old one, then we charge Rs. 50.”—Santhosh said.

“Do you have a *Sangam* for the *Shisha Kammaris*?”—I asked.

“We have an informal *Sangam*. But we keep meeting each other frequently anyway. Everyone in this region is somehow related to us. Tomorrow there is a wedding in Manchheriala and we all will go there and meet each other. When we meet each other we talk about our village. If someone is coming here from the village to start a living then we all help him to start a workshop”—Shankar replied.

“And do you visit your ancestral village?”—I asked.

“We go there once every year to visit our relatives.”—Santhosh replied.

“Do you worship *Veera Brahmendra Swamy* as the other blacksmiths do?”—I asked.

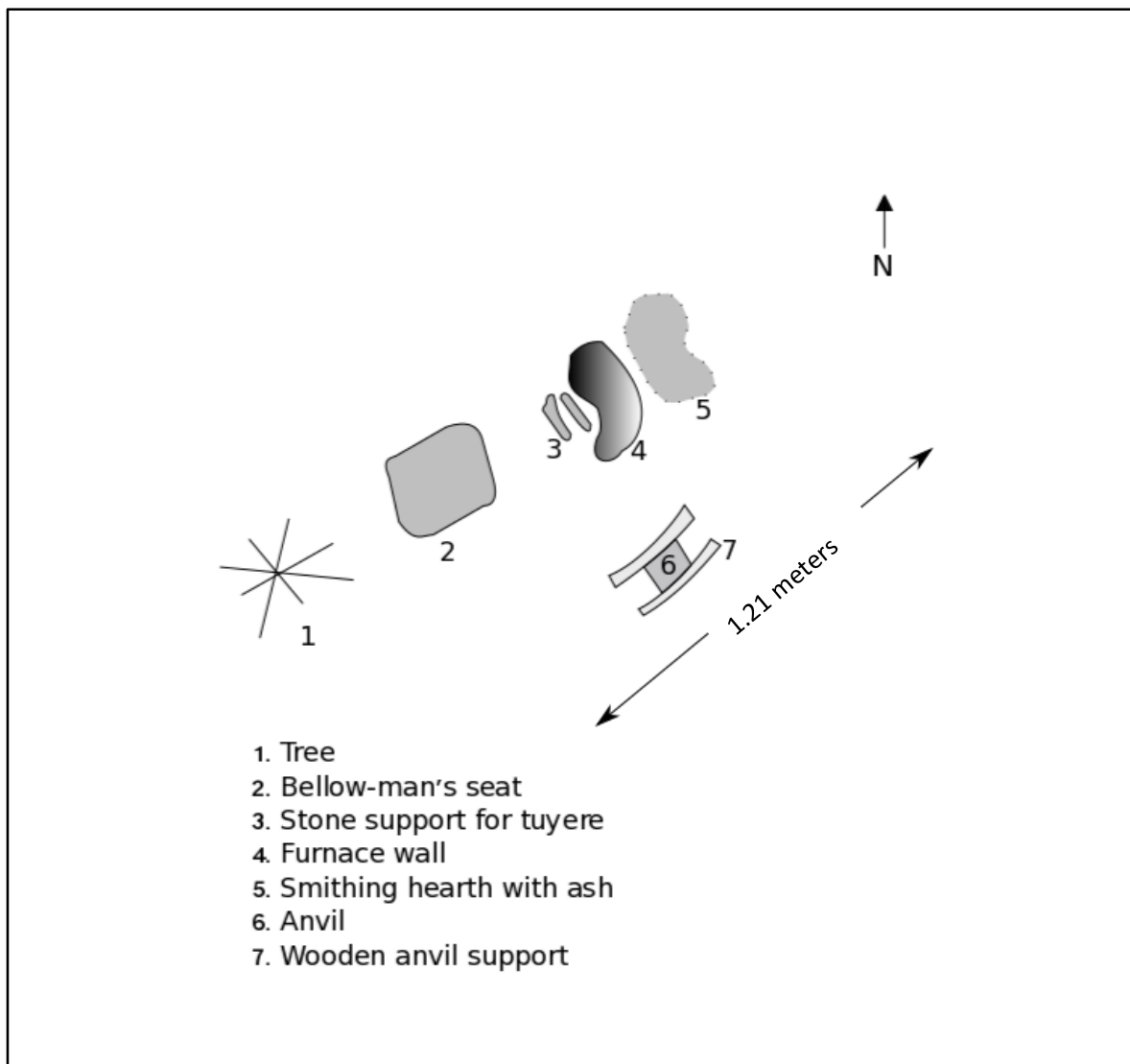
“No. We are Christians. We worship Christ and celebrate Christmas.”—Santhosh said.

## APPENDIX 2

## SKETCHES OF SOME SMITHIES IN THE STUDY AREA

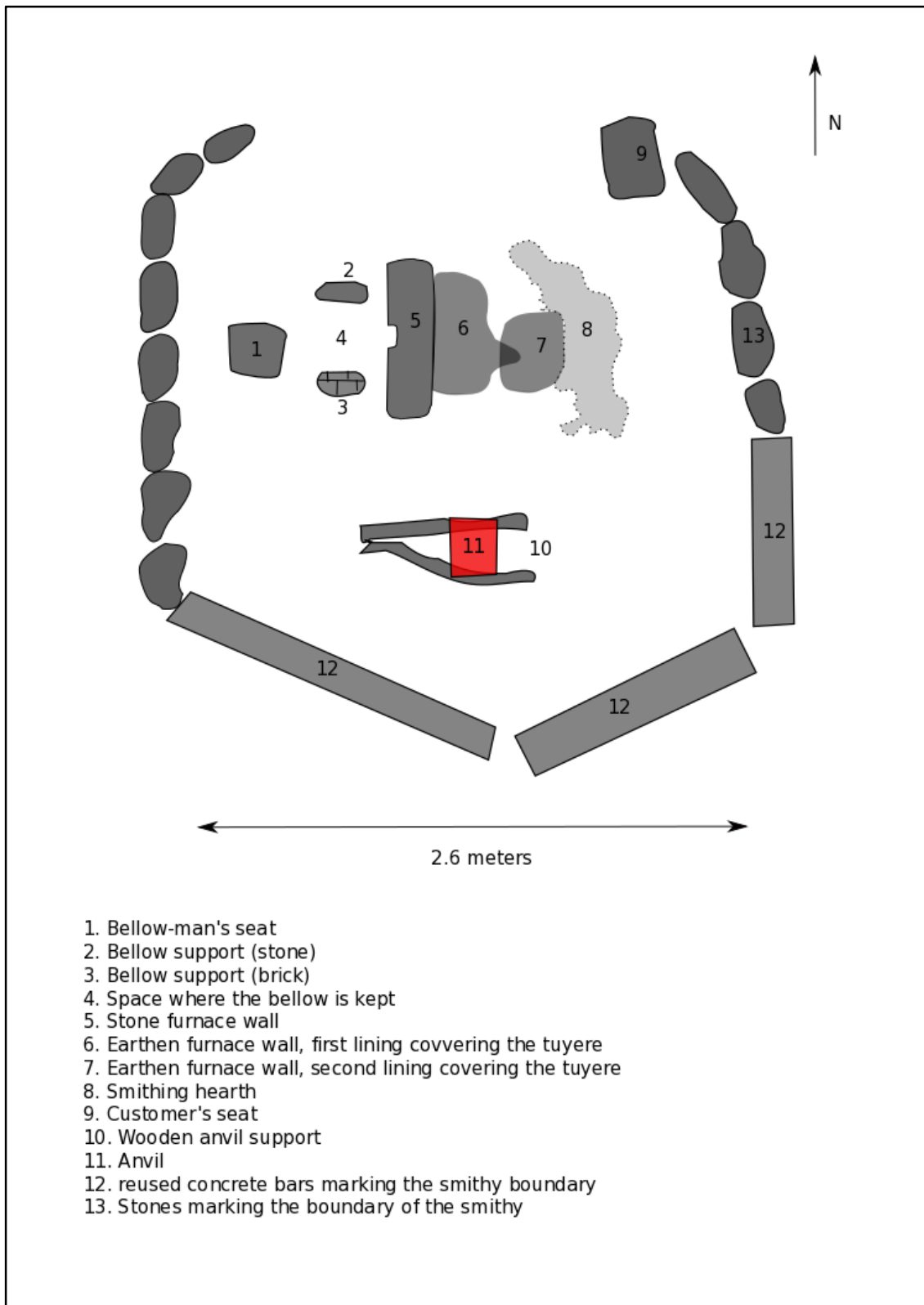
During the fieldwork for this research, I have taken rough sketches of some *kammari* workshops. A majority of these workshops are situated in the open air and follow a similar pattern of spatial organization. A representative sample of workshops is provided below. The sketches are not to scale. Nevertheless, it is expected that these sketches will help in identifying evidences of blacksmithing in the archaeological record of northern Telangana and neighbouring areas. A majority of the smithies presented here, face east (i.e. the direction the bellow-man faces). This is because of the ideological association of the *kammari* community with *Shiva*, who is considered to be the guardian deity of the east in the local custom. In the *Viswabrahmin* tradition, *Shiva* is also associated with *Manu* (see 6.2), arguably the first-born of God *Viswakarma*, and the progenitor of all the blacksmiths in the world.

Sketch No.	Owner of the Smithy	Place	Type
1.	Kuchanapally Kondiah's family	Dasturabad	Open air
2.	Yemnuri Bakkanna's family	Dasturabad	Open air
3.	Devarukonda Sayanna's family	Dhammannapeta	Awning
4.	Polasa Rajaiah's family	Nerella	Awning
5.	Jammikunta Murali's family	Maddunur	Open air
6.	Golapalli Lachhanna's family	Maddunur	Open air
7.	Kottapally Laxmirajam's family	Sirukonda	Open air
8.	Rajesh Chauhan's family ( <i>Shisha Kammari</i> )	Nirmal	Tin shade

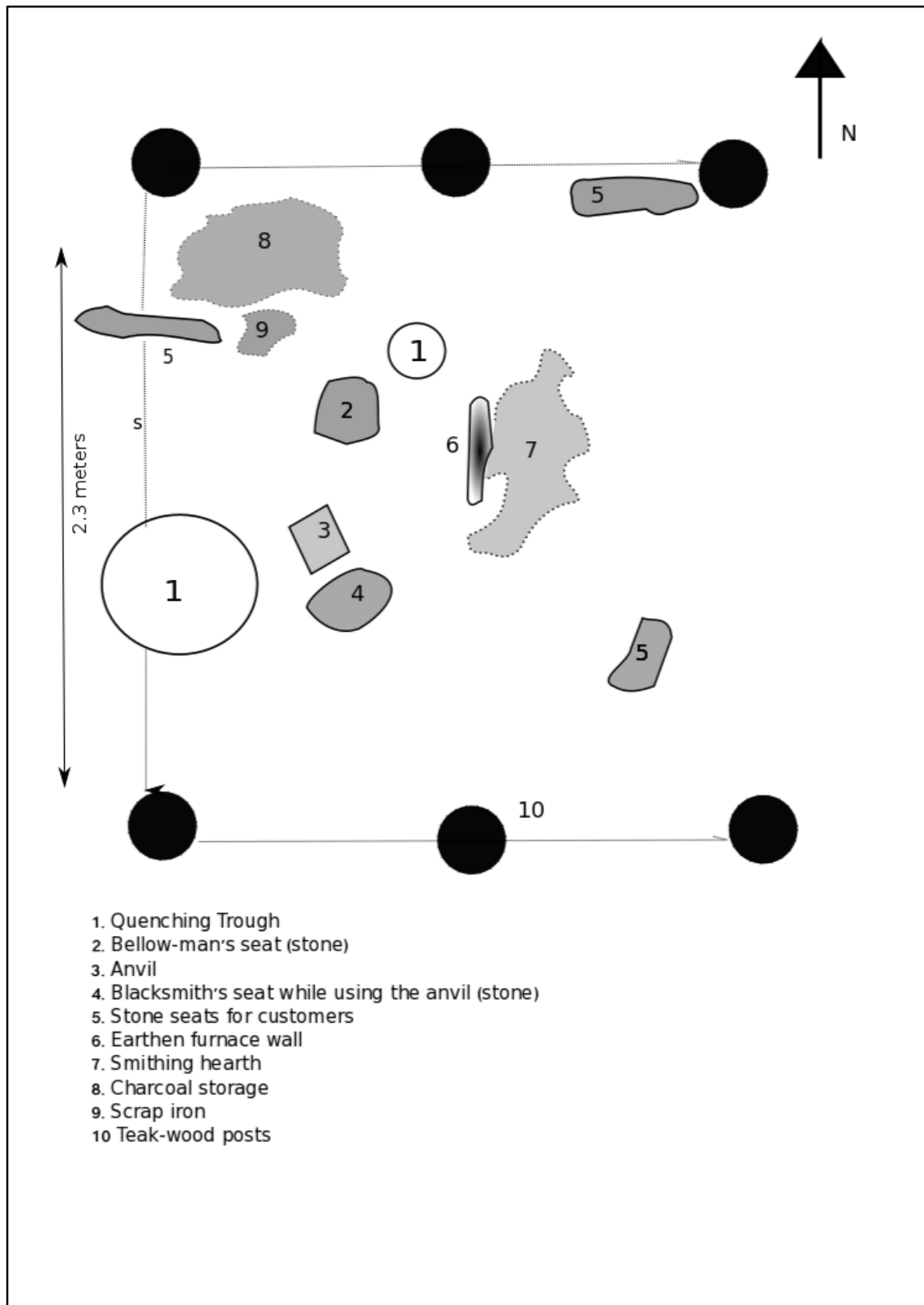


Sketch 1

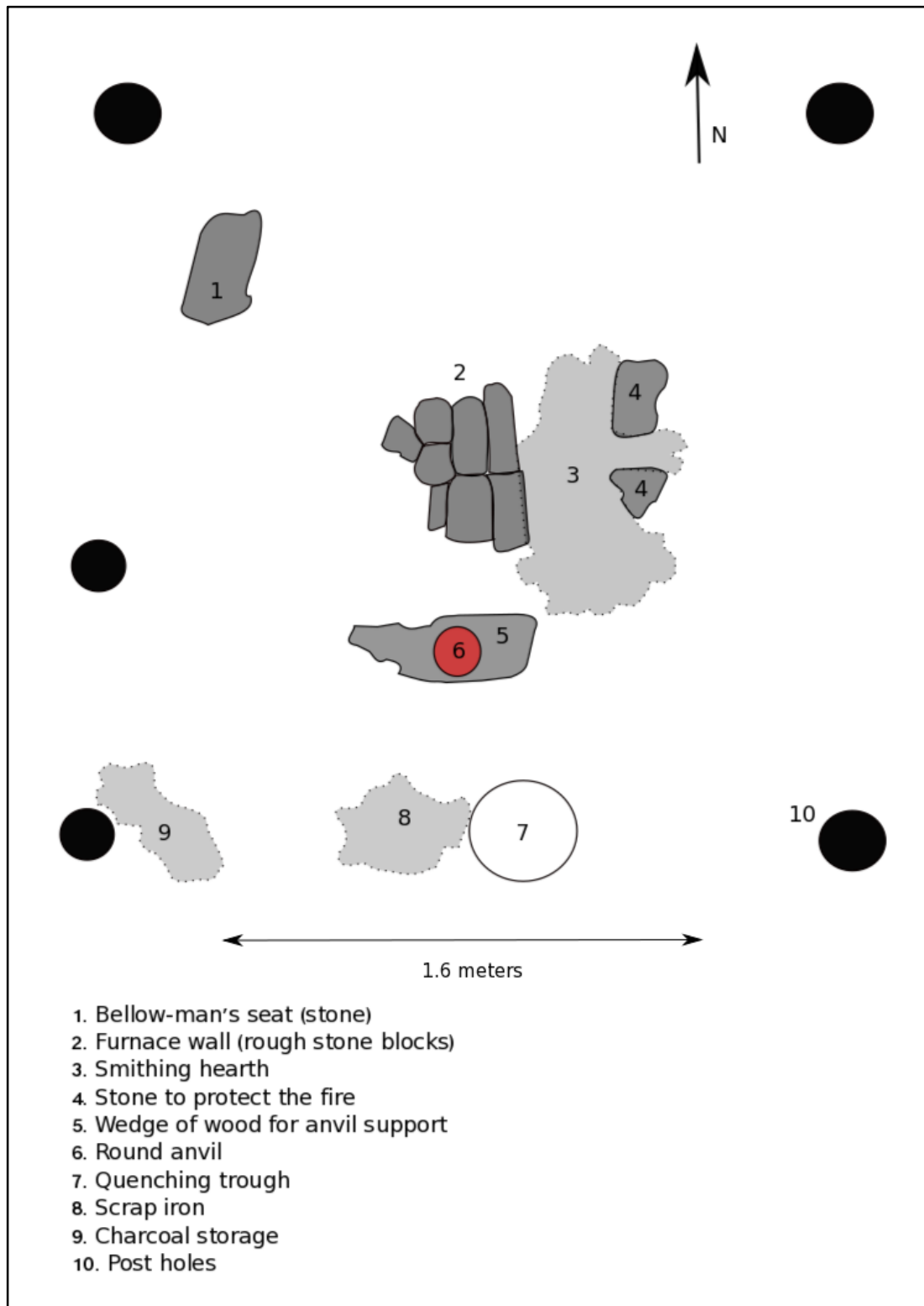




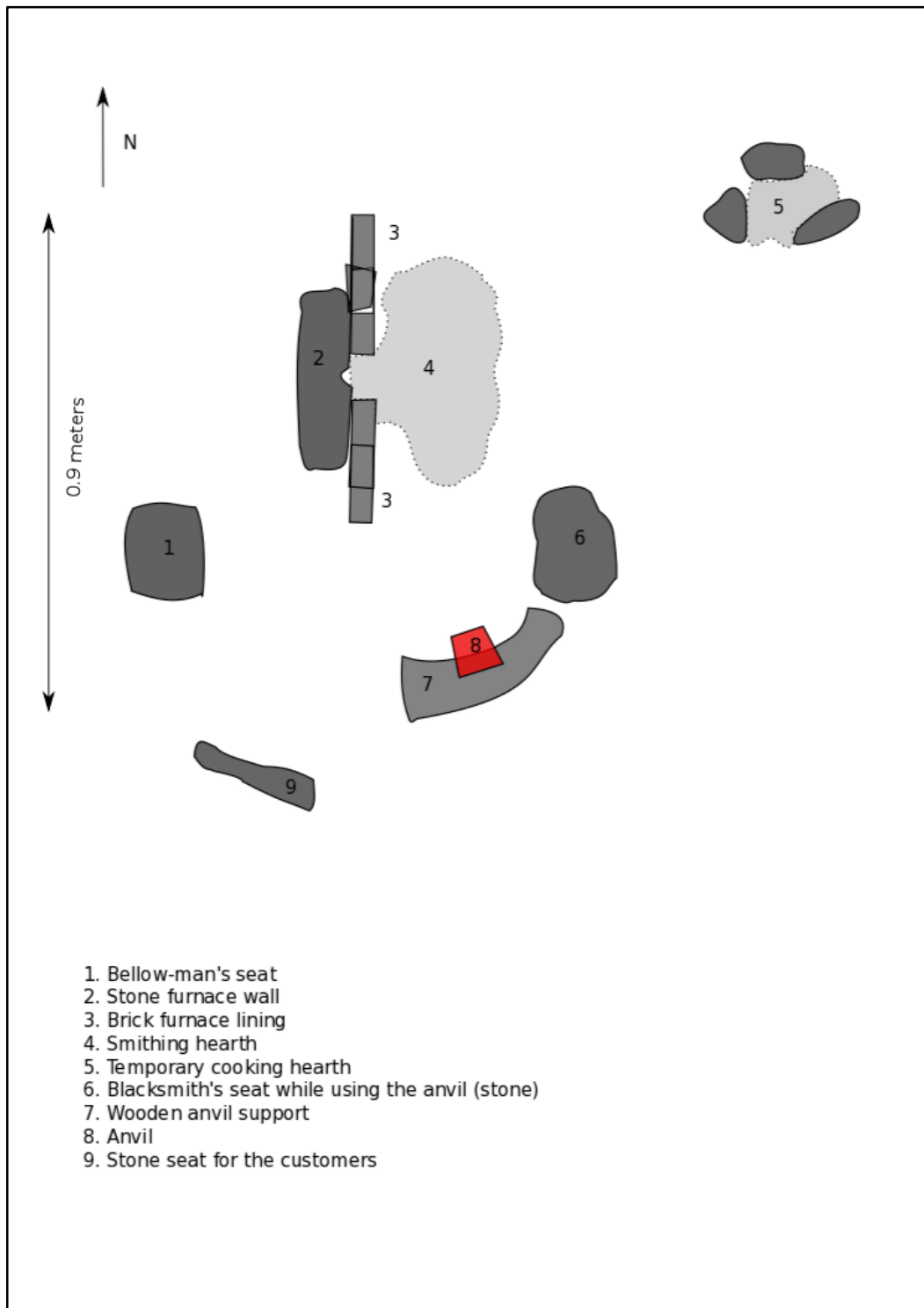
Sketch 1



Sketch 2

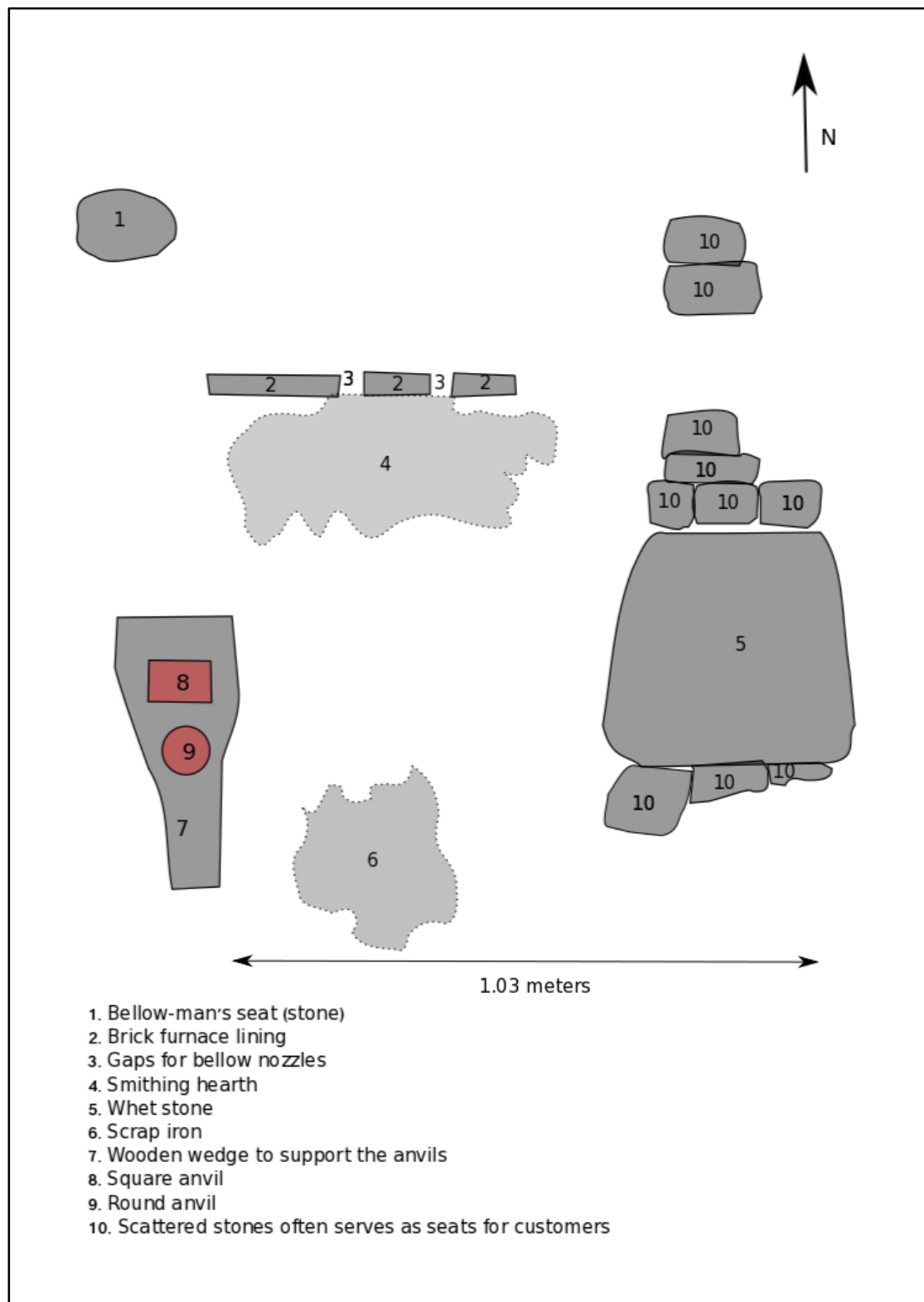


Sketch 3



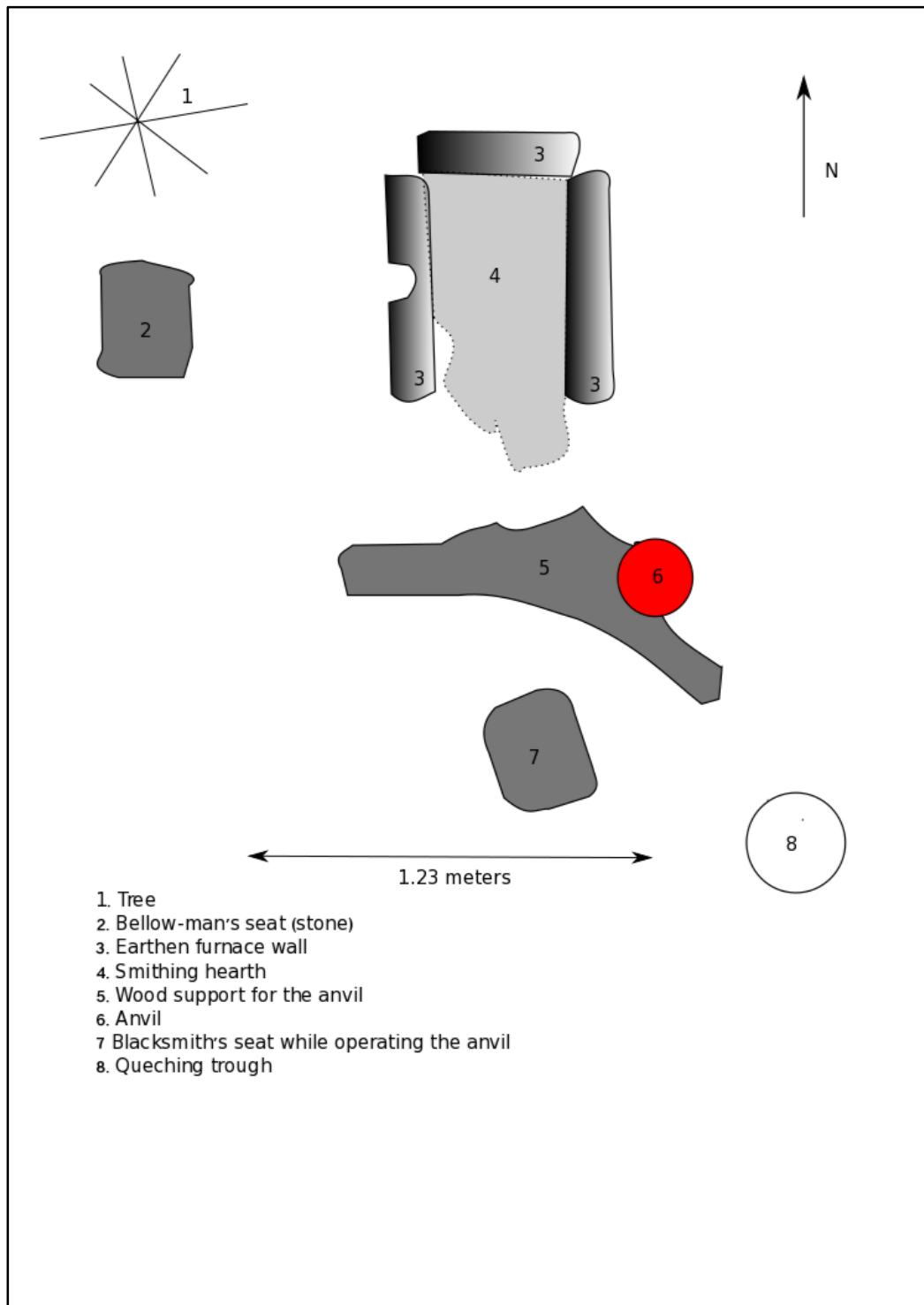
Sketch 4<sup>1</sup>

<sup>1</sup> This sketch was taken during *Ugadi*, the New Year in Telugu calendar. The blacksmiths are supposed to cook a vegetarian meal for themselves in the temple or near the smithy. Hence the presence of a temporary cooking hearth (no. 5).

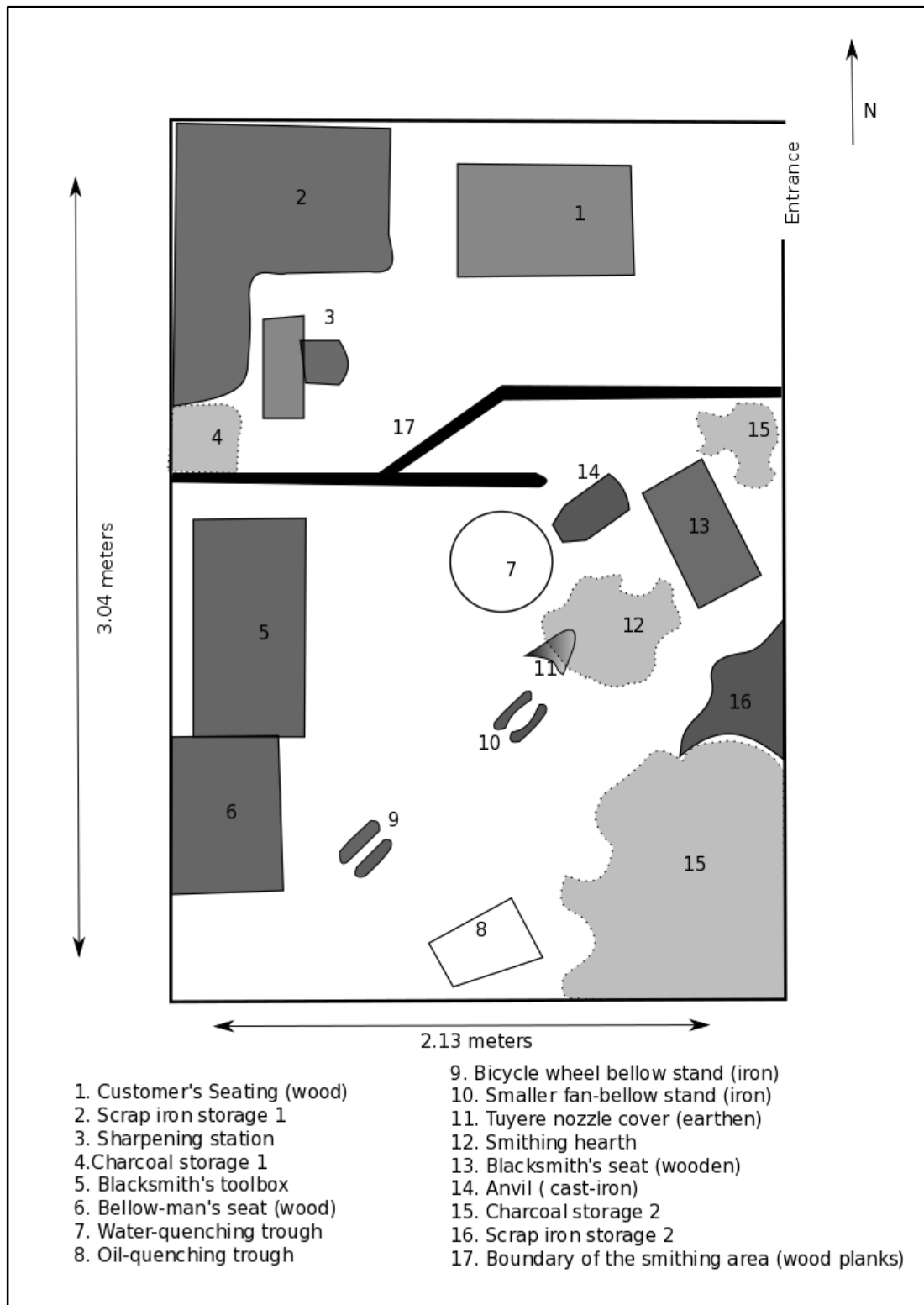


Sketch 5<sup>2</sup>

<sup>2</sup> The smithy faces south due to constraint of space towards east in this case.



Sketch 7



Sketch 8



## APPENDIX 3

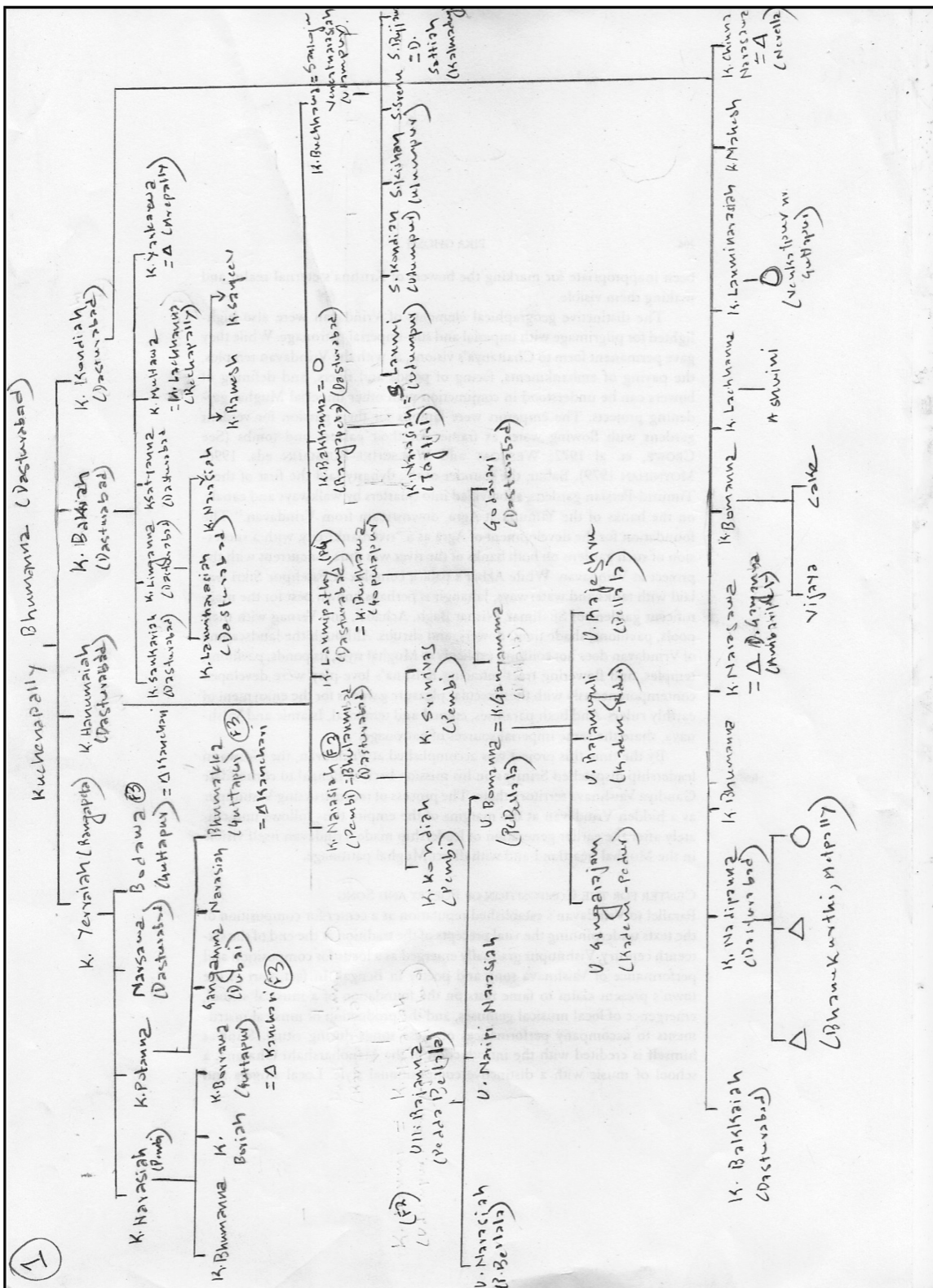
### **MUDDA KAMMARI GENEALOGIES**

I have already discussed in Chapters 6, 7 and 8 that during my fieldwork, I collected the genealogical information of 15 *mudda kammari* families. Afterwards I entered the collated data from these 15 families into the FamilyTree 3 software. It was found that all of the 309 individuals spanning over 4 generations that these genealogies contain, are related through definable kinship relations with each other. This indicates the practice of endogamy among the *mudda kammari* community in the study area. It also indicates the presence of a discrete *mudda kammari* group identity in the past in northern Telangana.

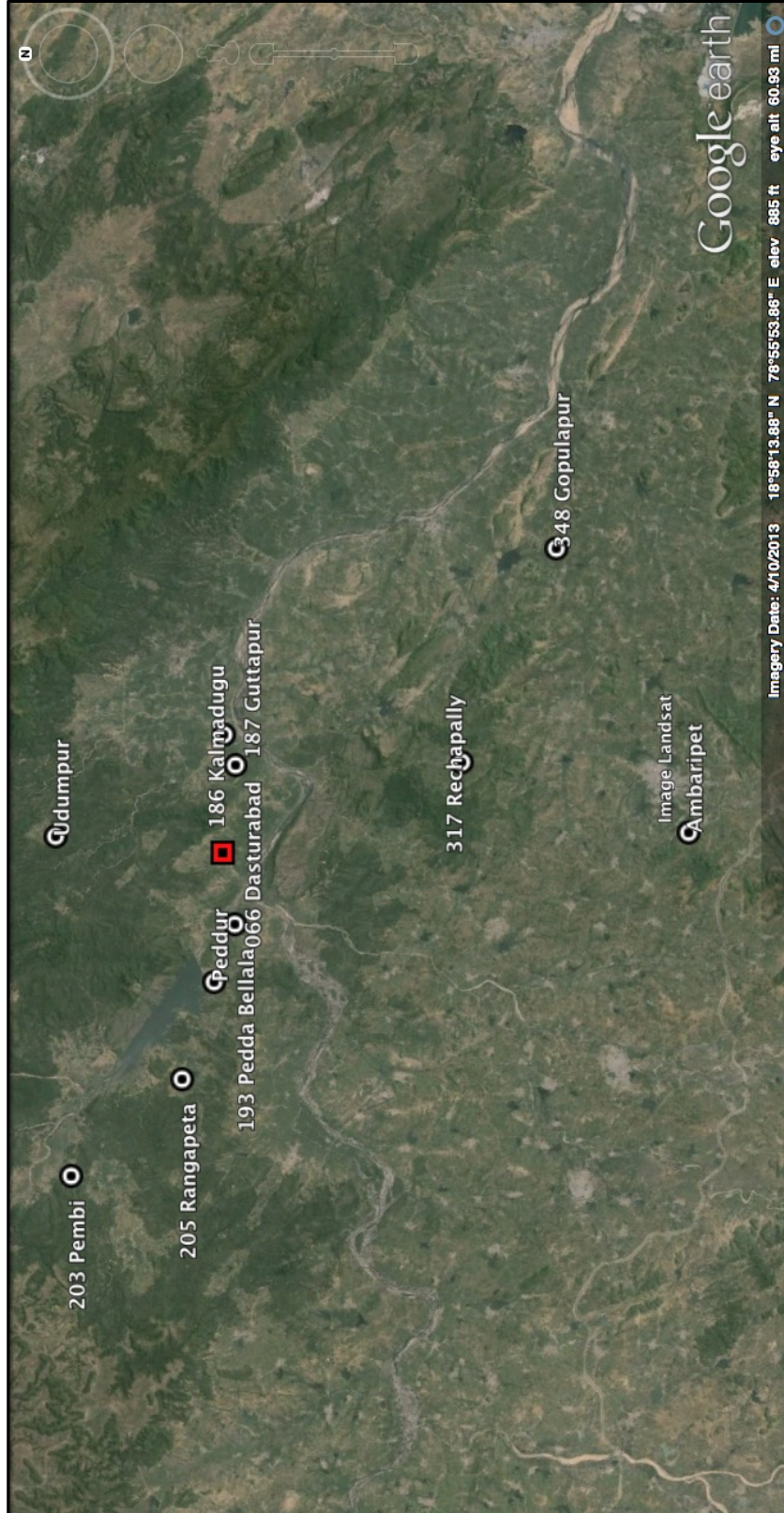
Since all of the 309 individuals featuring in the genealogy document of these 15 families are related to each other, the traditional genealogy chart that was generated through FamilyTree 3 was found to be complicated, being spread across several pages.

Therefore, it was decided to present the original charts drawn on pencil and paper during the field-survey. Each chart is followed by a map and a brief report.

The circles, when used in the chart represent female, whereas the triangles represent male, following existing convention of drawing family tree.



## Chart 1: Kuchanapally of Dasturabad



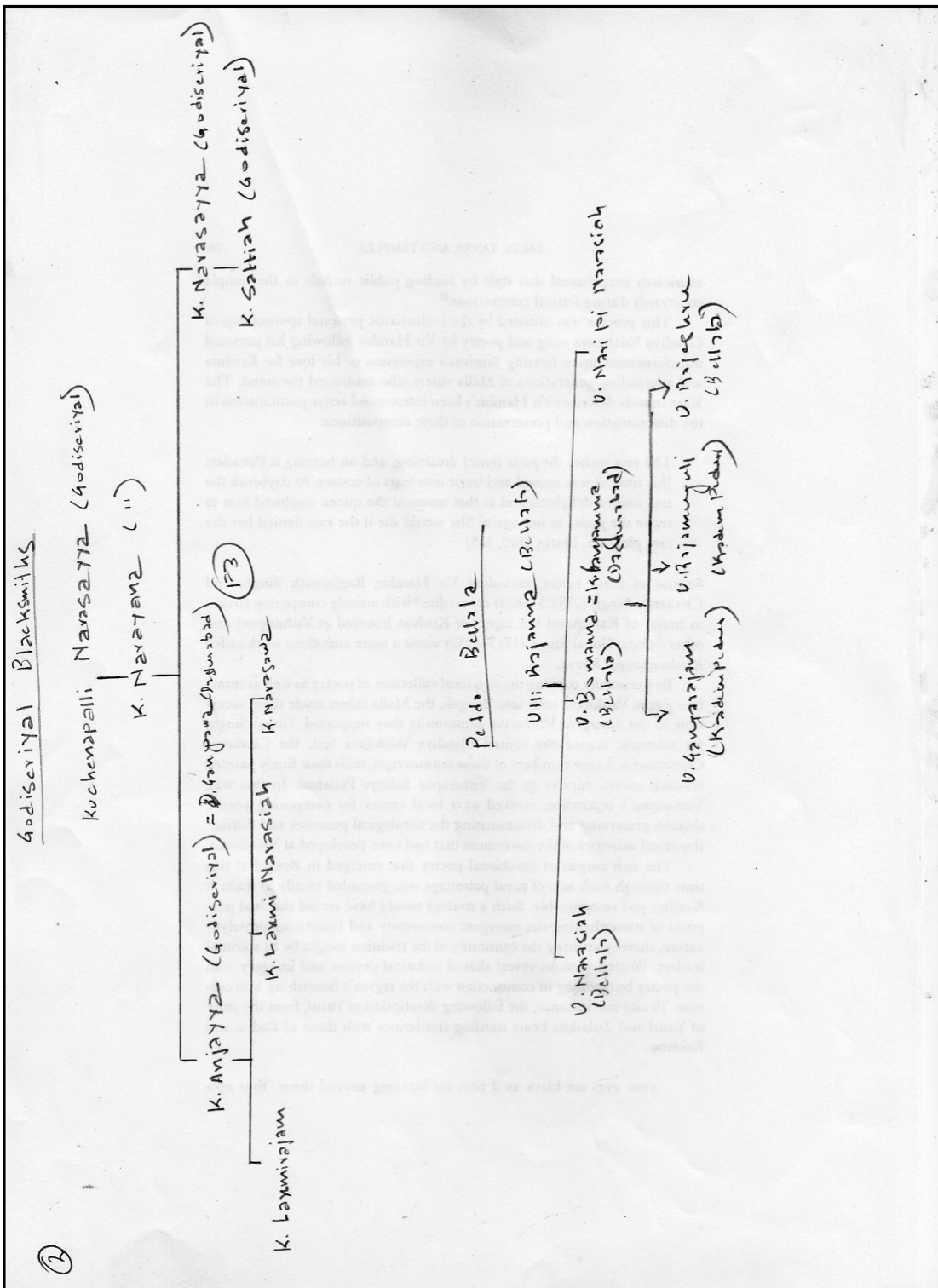
**Map 1 Showing the villages with which Kuchanapally of Dasturabad established marital relations in last 3 generations**

**List of surnames with which marital relations were established:**

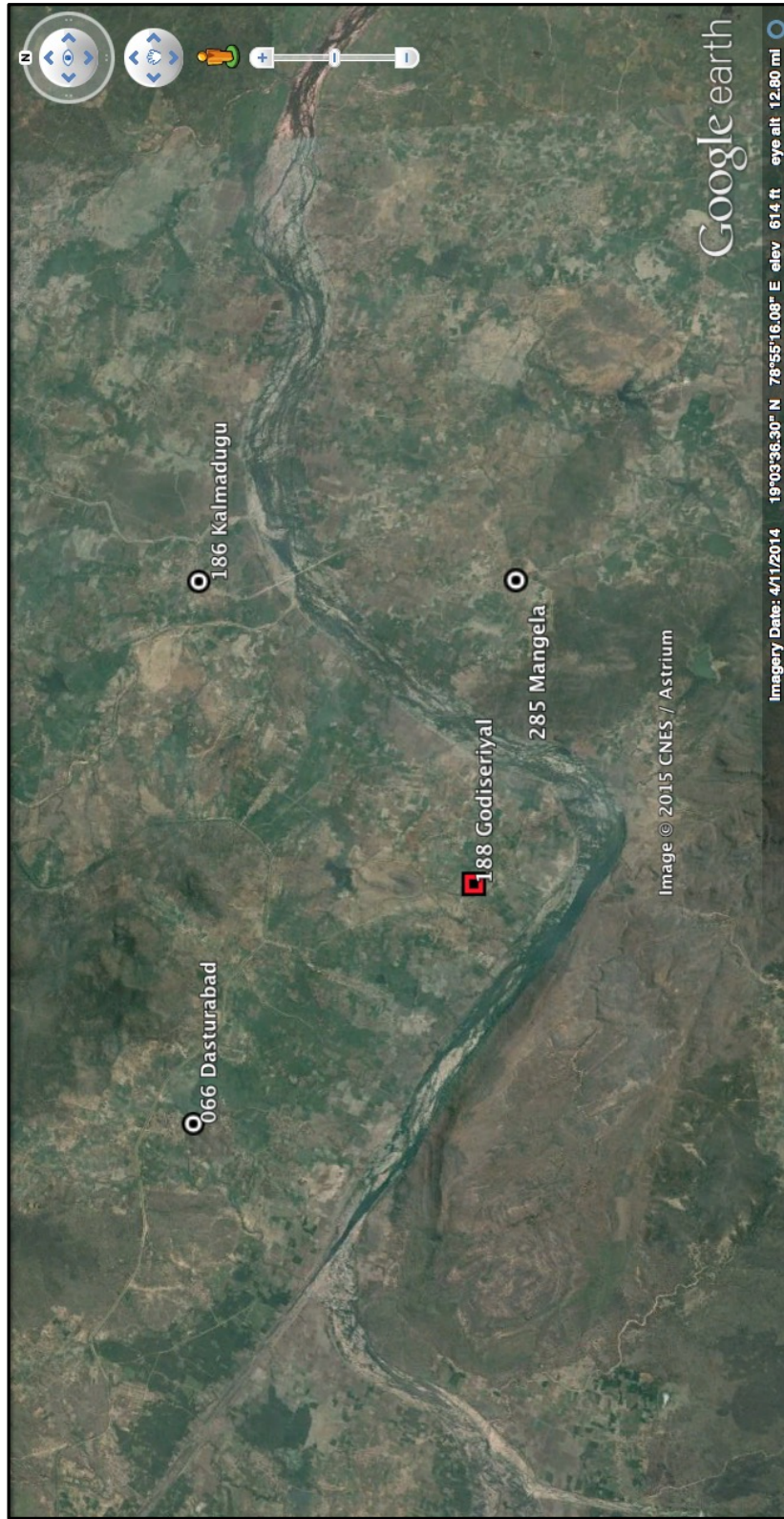
<b>Name of the Village</b>	<b>Surname</b>
Rangapeta	Kuchanapally (first cousin marriage)
Pembi	Kuchanapally (first cousin marriage)
Guttapur	Kanchari/Kancharla/Kansarla (depending on pronunciation)
Rechapally	Kalluri
Gopulapur	Desaradi
Udumpur	Sankoji/Sankoji*
Kalmaidugu	Desaradi
Pedda Bellala	Ulli
Pedur	Ulli
Ambaripet	Desaradi
Arepally	Polasa
Nerella	Polasa

\*Sankoji is the only non-mudda kammari surname in this list. All others are mudda kammari surnames and from fieldwork conducted it was evident that all these surnames were actively involved in iron smelting. Some villages attached with these surnames also yielded evidences of past smelting, while in others like Rangapeta, mudda kammari from Dasturbad had migrated in the last five decades after smelting had finally ceased.





## Chart 2: Kuchanapally of Godiseriyal



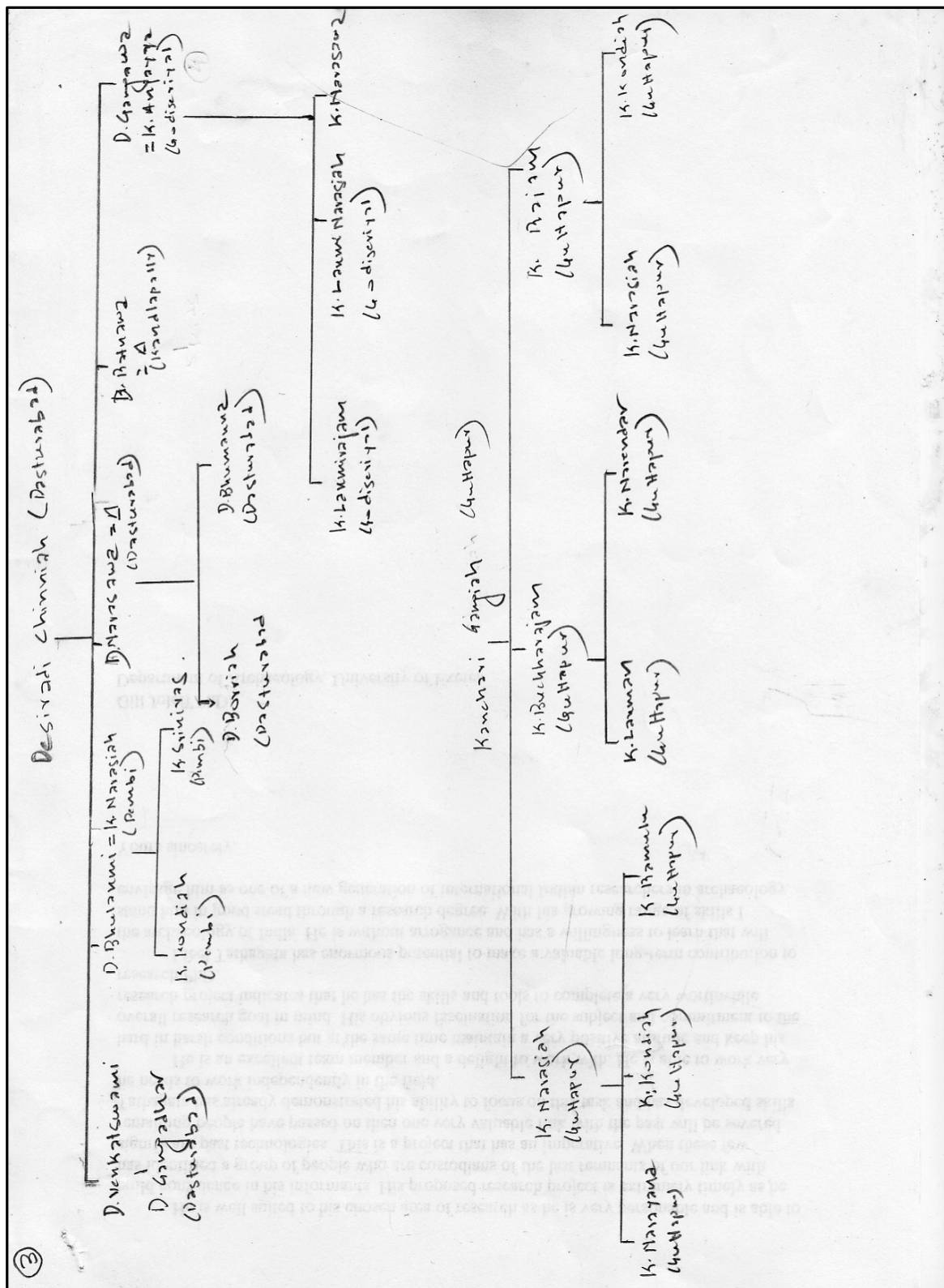
**Map 2 Showing the villages with which Kuchanapally of Godiseriyal established marital relations in last 3 generations**

**List of surnames with which marital relations were established:**

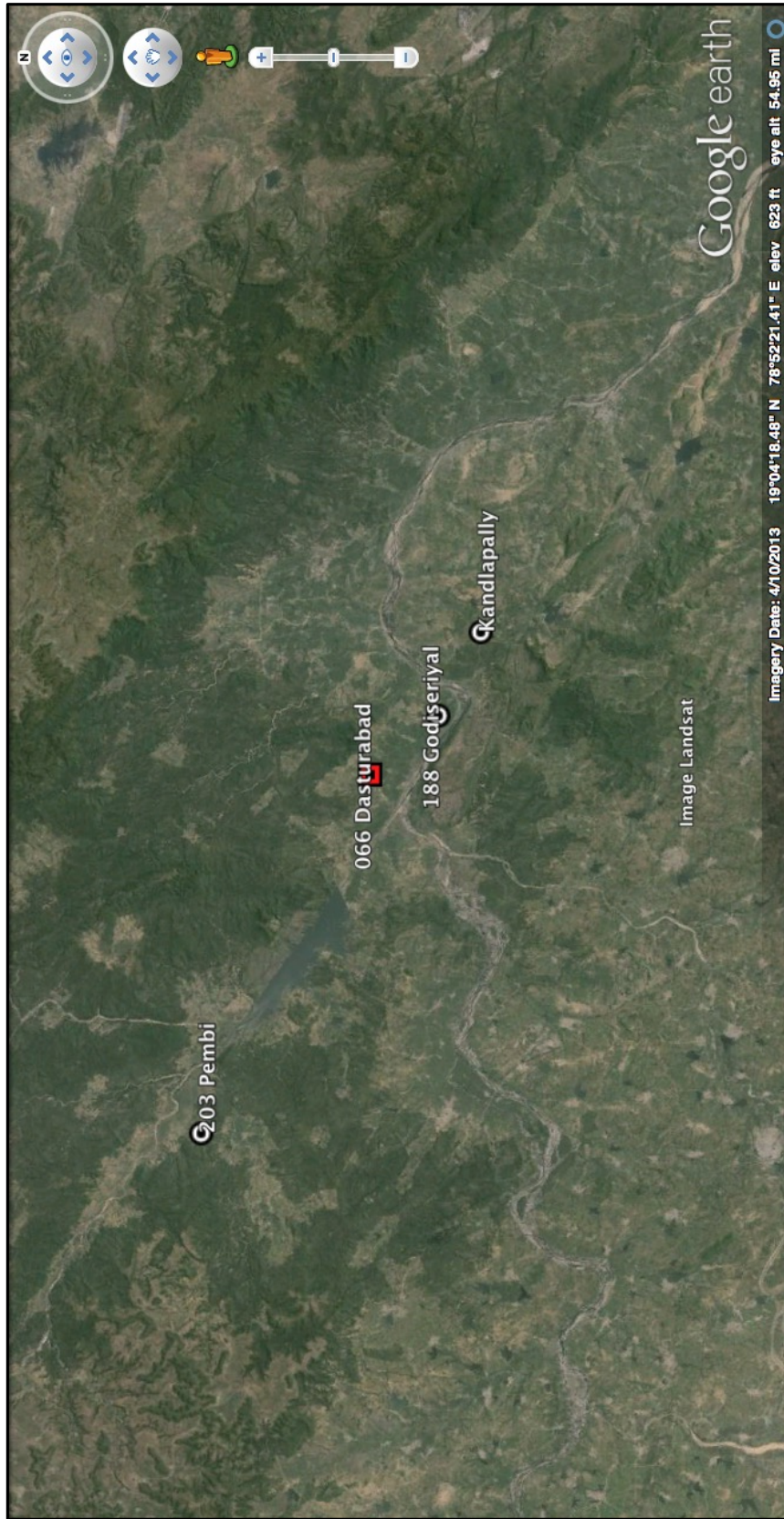
<b>Name of the Village</b>	<b>Surname</b>
Dasturabad	Desaradi
Kalmadugu	Desaradi
Mangela	Polasa

All of these surnames are Mudda Kammari surnames and evidences of smelting found in these villages during fieldwork. Memory of smelting, although faint, still survives among these groups.





### Chart 3: Desaradi of Dasturabad



**Map 3 Showing the villages with which Desaradi of Dasturabad established marital relations in last 3 generations**

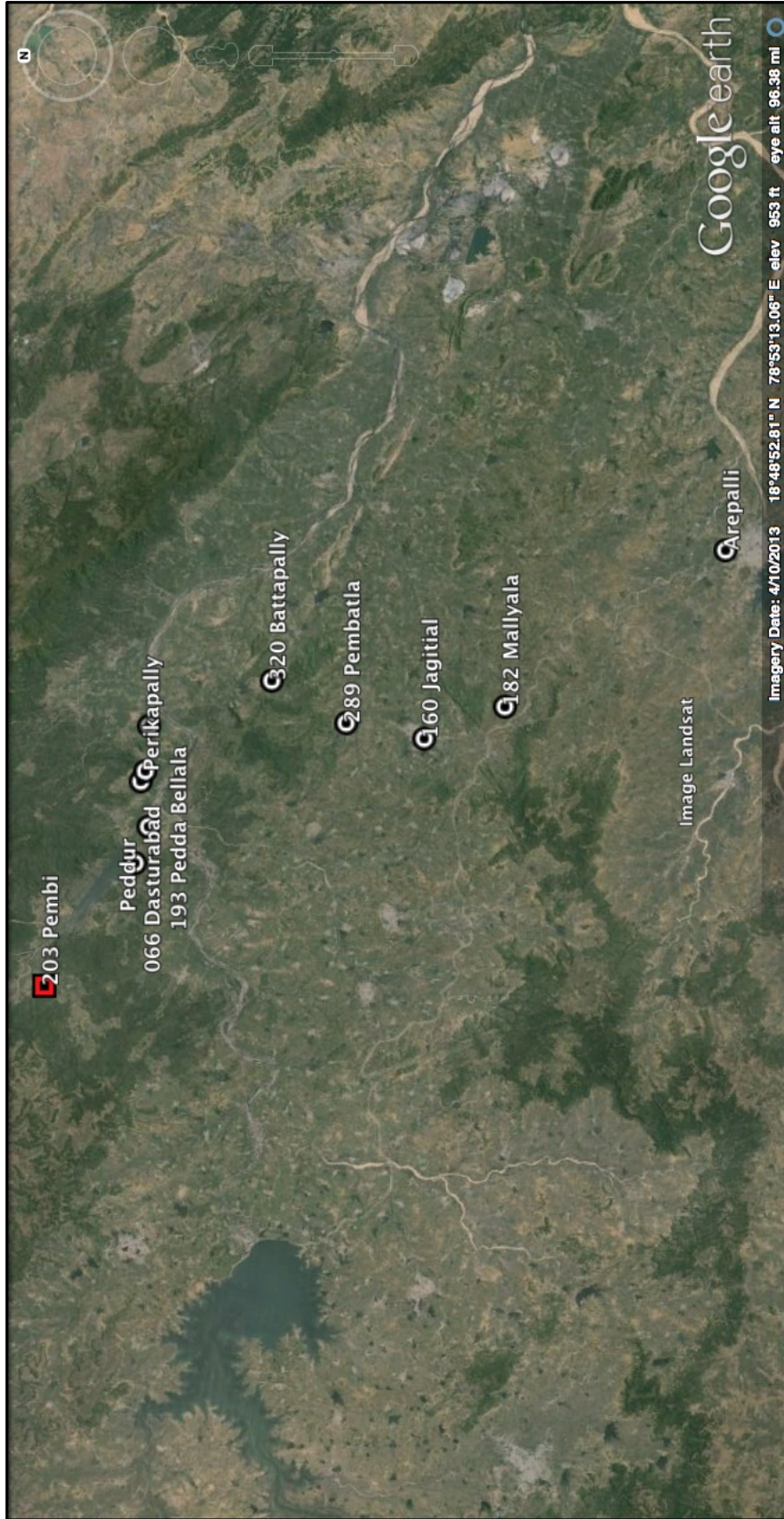
**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Pembi	Kuchanapally
Godiseriyal	Kuchanapally
Kandlapally	Polasa

All of these surnames are Mudda Kammari surnames and evidences of smelting found in these villages (except Kandlapally) during fieldwork. Memory of smelting, although faint, still survives among these groups.



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**Map 4 Showing the villages with which Kuchanapally of Pemi and  
Gopulapur established marital relations in last 3 generations**

**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Battapally	Chattlapally
Dasturabad	Kuchanapally (first cousin)
Arepally	Polasa
Jagtial*	Chattlapally
Pembatla	Sankoji/Sankoju**
Perikapally	Polasa
Guttapur	Kanchari/Kancharla/Kansarla
Mallyala	Chattlapally/Kattapally/Sattlapally
Pedda Bellala	Ulli
Peddur	Ulli

\*Recent migration in Jagtial for livelihood.

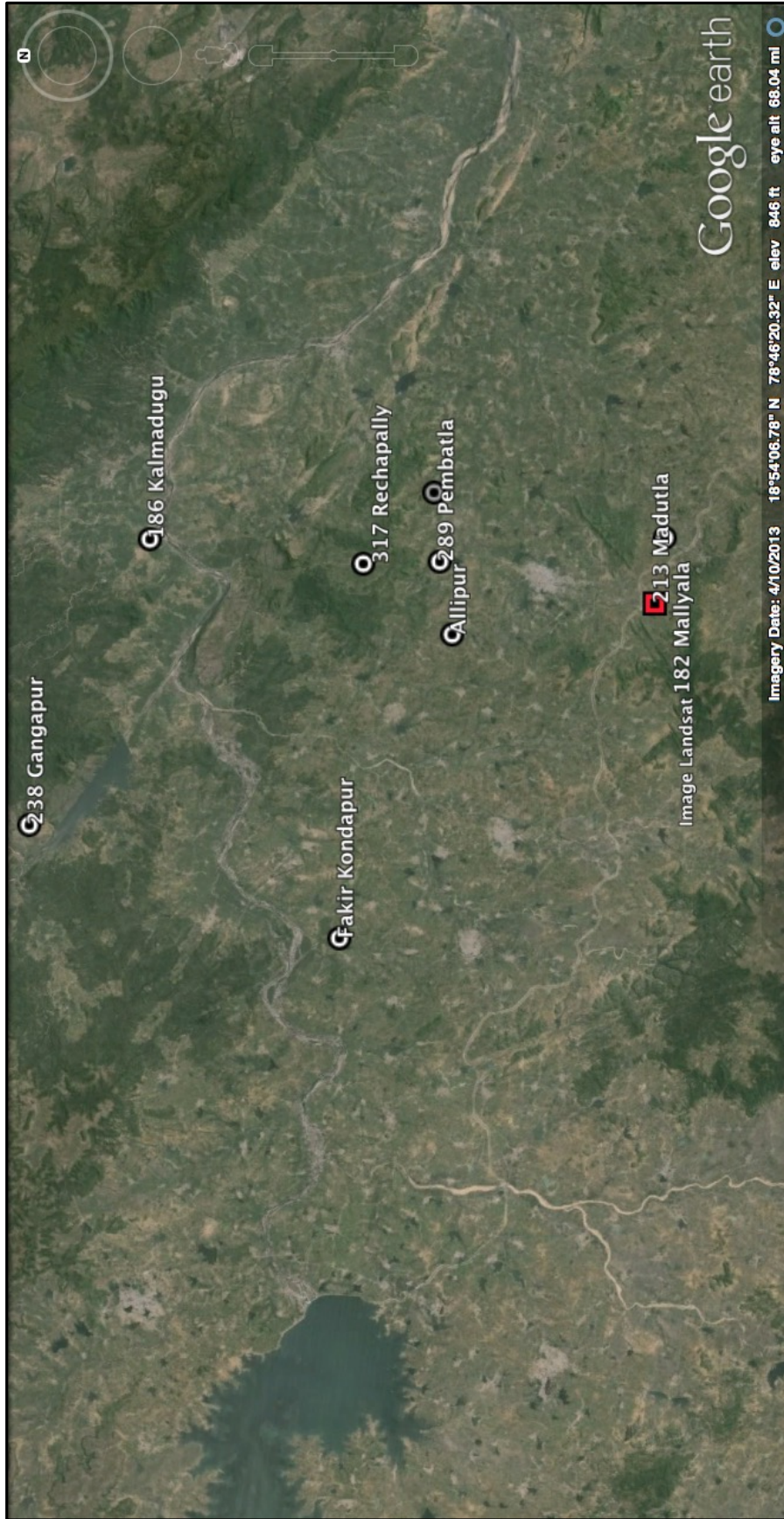
\*\*Sankoji/Sankoju is a non-Mudda Kammari surname. Probably migrated from Maharashtra.

All of these surnames are Mudda Kammari surnames and evidences of smelting found in these villages (except Arepally (not surveyed), Peddur and Jagtial) during fieldwork. Memory of smelting, although faint, still survives among these groups.









**Map 5 Showing the villages with which Padakanti of Madutla established marital relations in last 3 generations**

**List of surnames with which marital relations were established:**

Name of the Village	Surname
Habsipur/Ayispur	Immadi
Rechapally	Maddilapally/Maddinapally
Kalmadugu	Sriramulu*
Gangapur	Chakklapally/Sakklapally/Chattlapally (?)
Pembatla	Sankoji/Sankoju**
Mallyala	Chattlapally/Kattapally/Sattlapally
Allipur	Unknown
Fakir Kondapur	Unknown

\*Sriramulu is not a *mudda kammari* surname. However there are Desaradi (Mudda Kammari) families in Kalmadugu who had migrated from Dasturabad area 6-7 decades back. The memory of smelting exists but there is a stigma among the Desaradis here to talk about smelting.

\*\*Not a Mudda Kammari surname. Probably migrant blacksmiths from Maharashtra. Pembatla and neighbouring Konapur has evidence of smelting. Blacksmith family with surname Rajaram were Mudda Kammaris and have faint memory of smelting as found during the fieldwork.

All other surnames are Mudda Kammari surnames and the villages have evidence of smelting in them or nearby. Although Chakklapally of Gangapur has similar stigma as Desaradis of Kalmadugu and do not want to admit their Mudda Kammari identity.



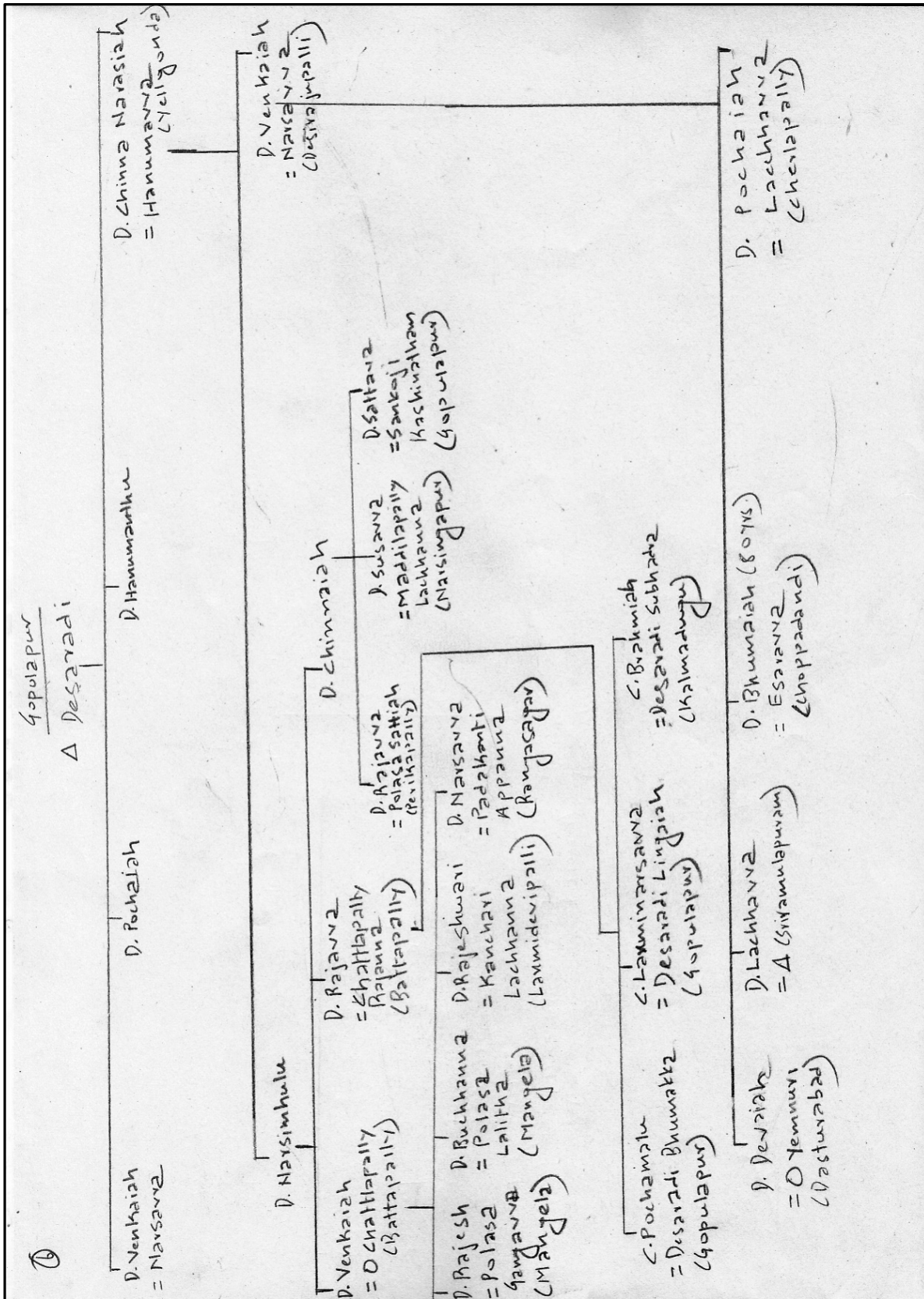


Chart 6: Desaradi family Branch I of Gopulapur

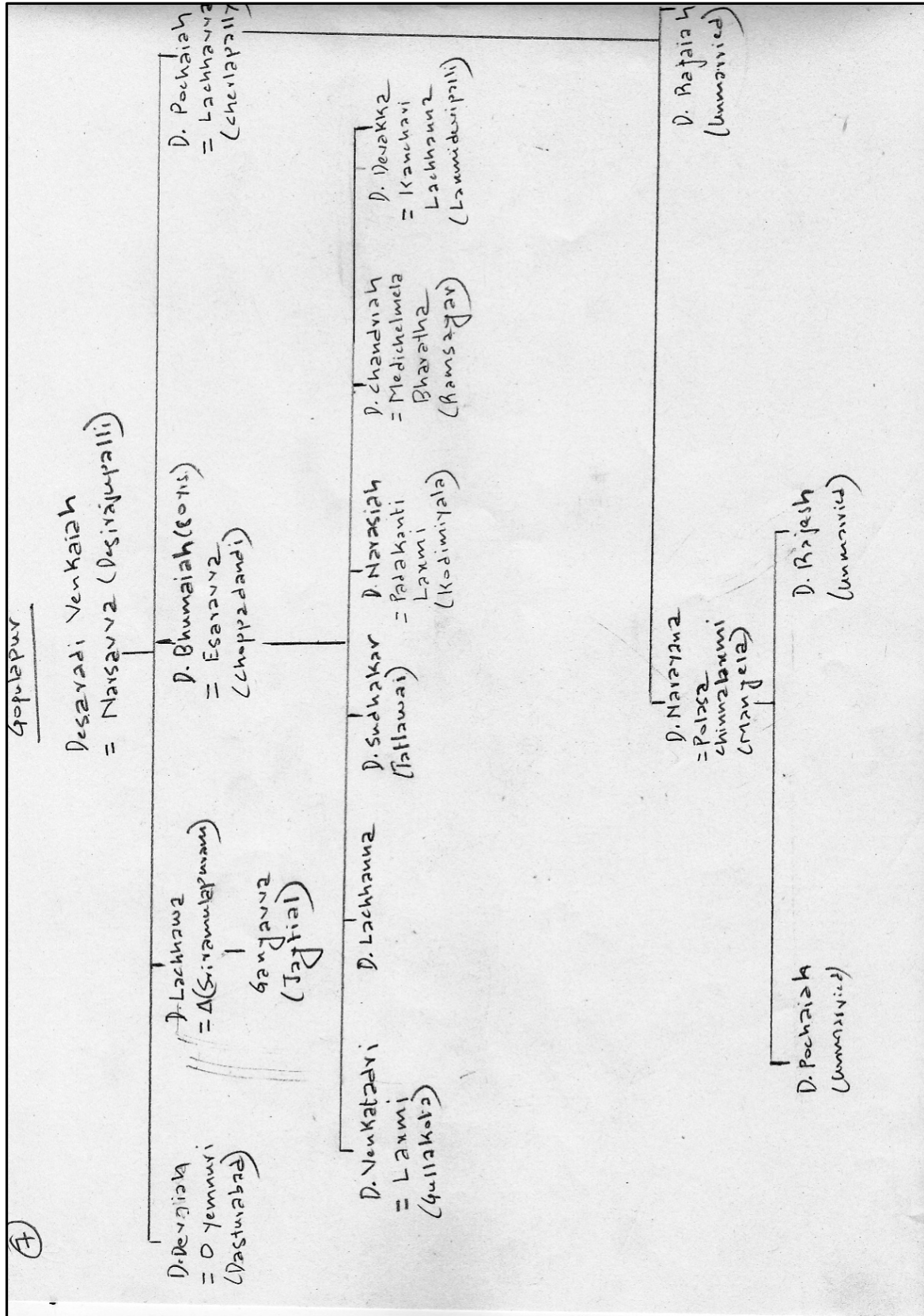
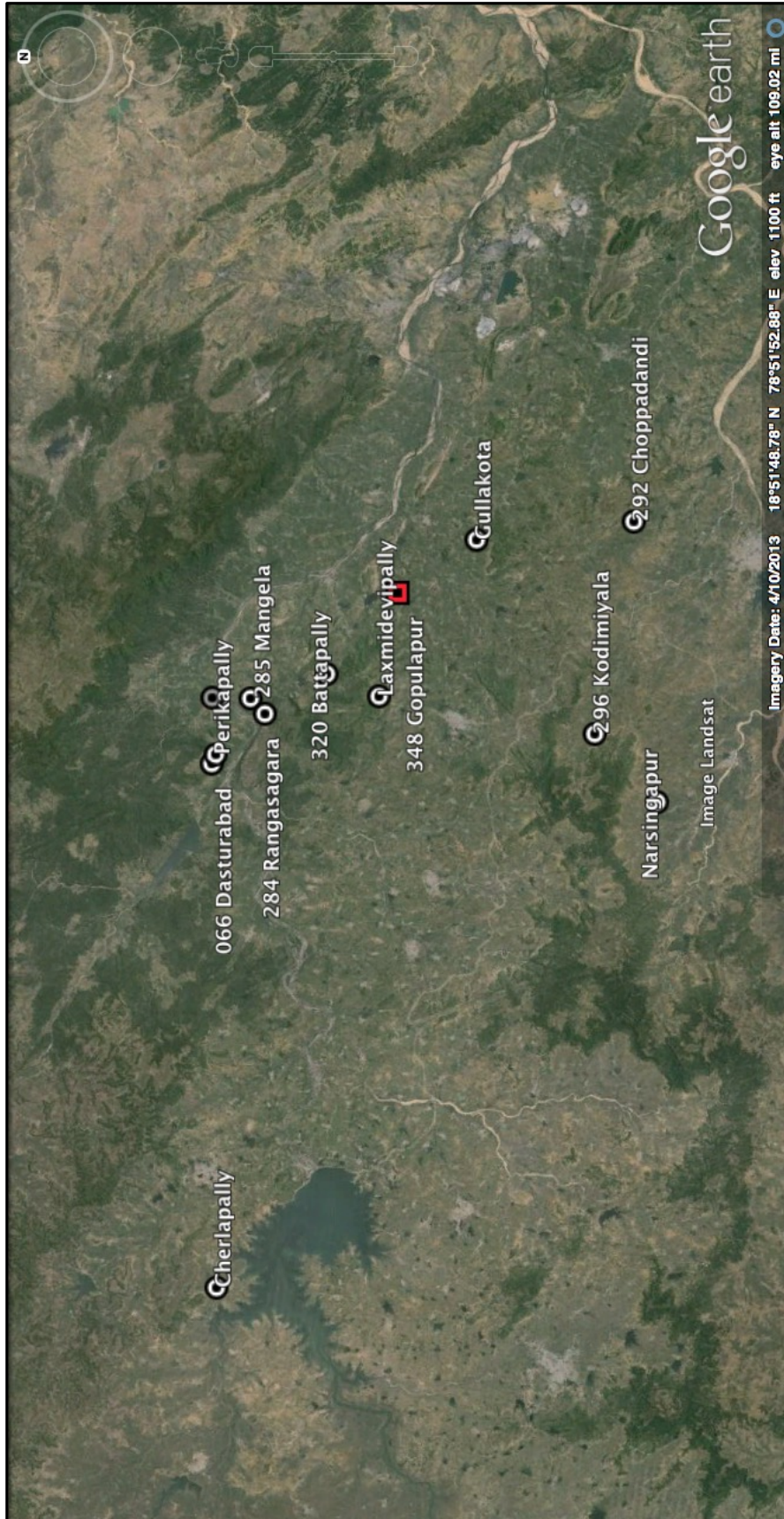


Chart 7: Desaradi family Branch II of Gopulapur





**Map 6 Showing the villages with which Desaradi family Branches I & II of Gopulapur established marital relations**

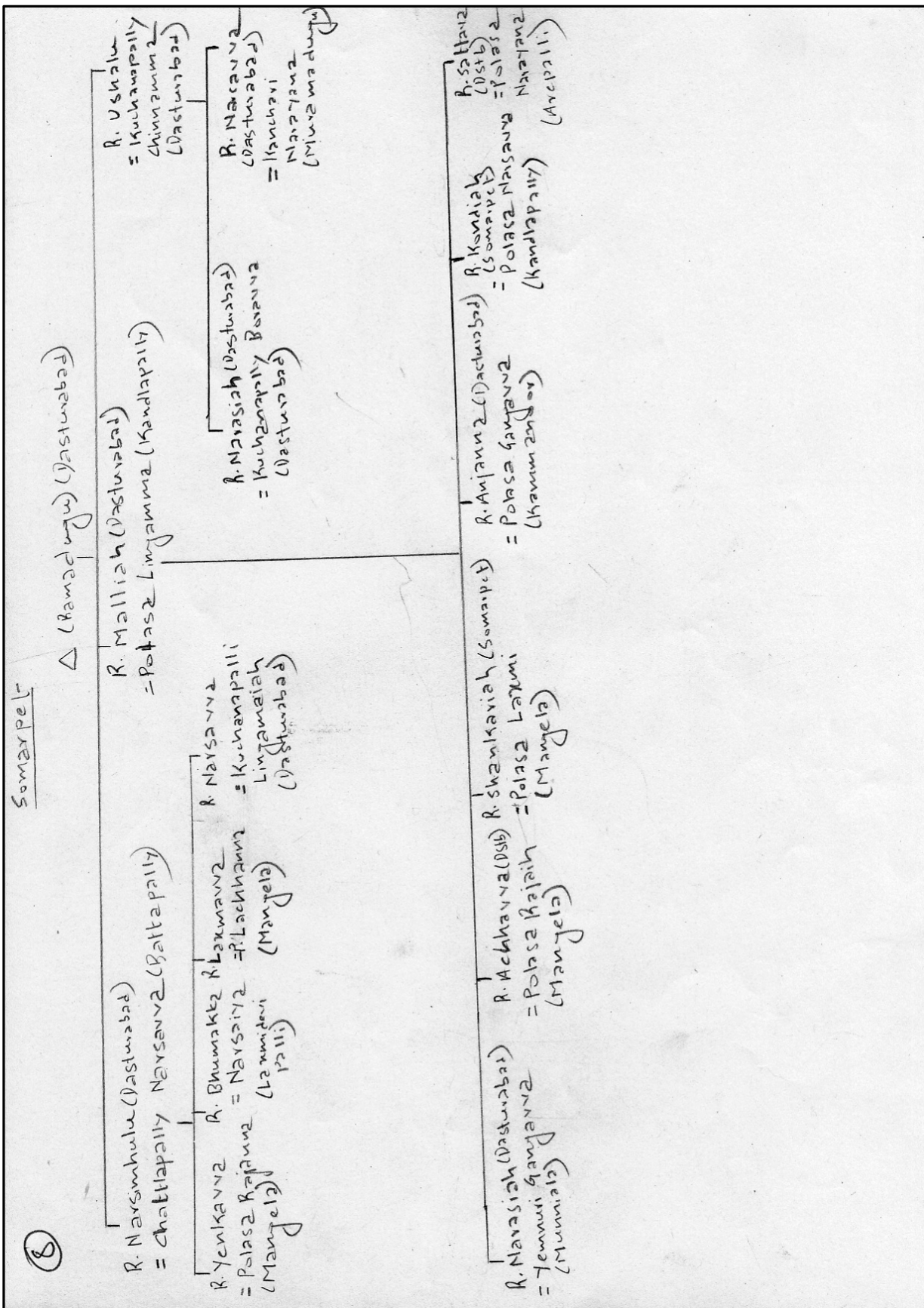
**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Yellgonda (location not established)	Unknown
Battapally	Chattlapally/Sattlapally
Mangela	Polasa
Laxmidevipally	Kanchari/Kancharla/Kansarla
Rangasagar	Padakanti
Perikapally	Polasa
Narsingpur	Maddilapally/Maddinapally
Gopulapur (same village)	Sankoji/Sankaju*
Kalmadugu	Desaradi (first cousin)
Desirajupally (location not established)	Unknown
Cherlapally	Unknown
Choppadandi	Padakanti
Gullakota	Unknown
Kodimiyala	Padakanti
Ramsagar (location not established)	Medichelmela*

\*Sankoji/Sankaju and Medichelmela are not Mudda Kammaris surnames. While Sankoji/Sankaju are most likely immigrant blacksmiths from Maharashtra, Medichelmela are normal Viswakarma blacksmith/carpenters.

All others are Mudda Kammaris.





### Chart 8: Ramadugu of Somarpet





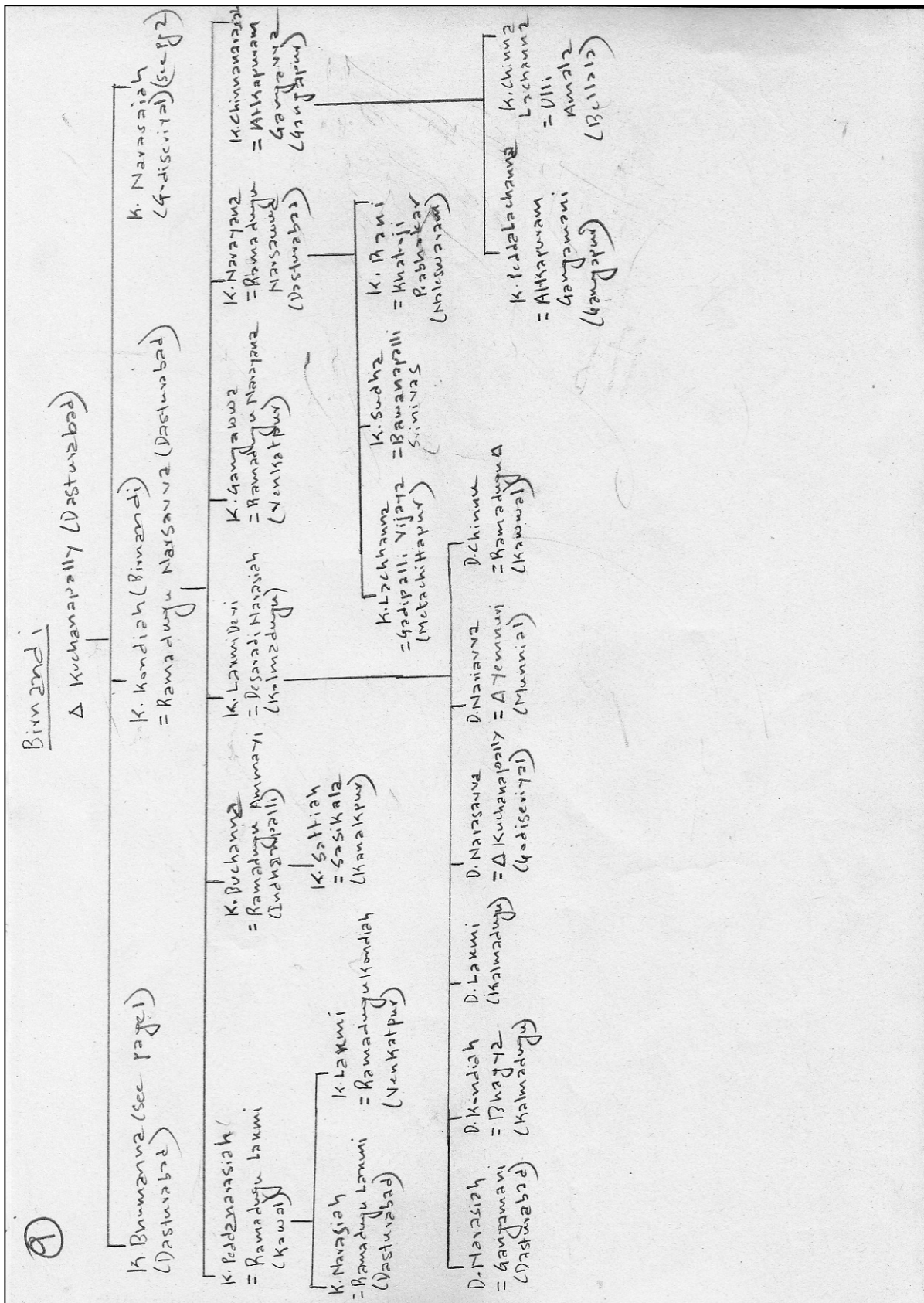
**Map 7 Showing the villages with which Somarpet established marital relations**

**List of surnames with which marital relations were established:**

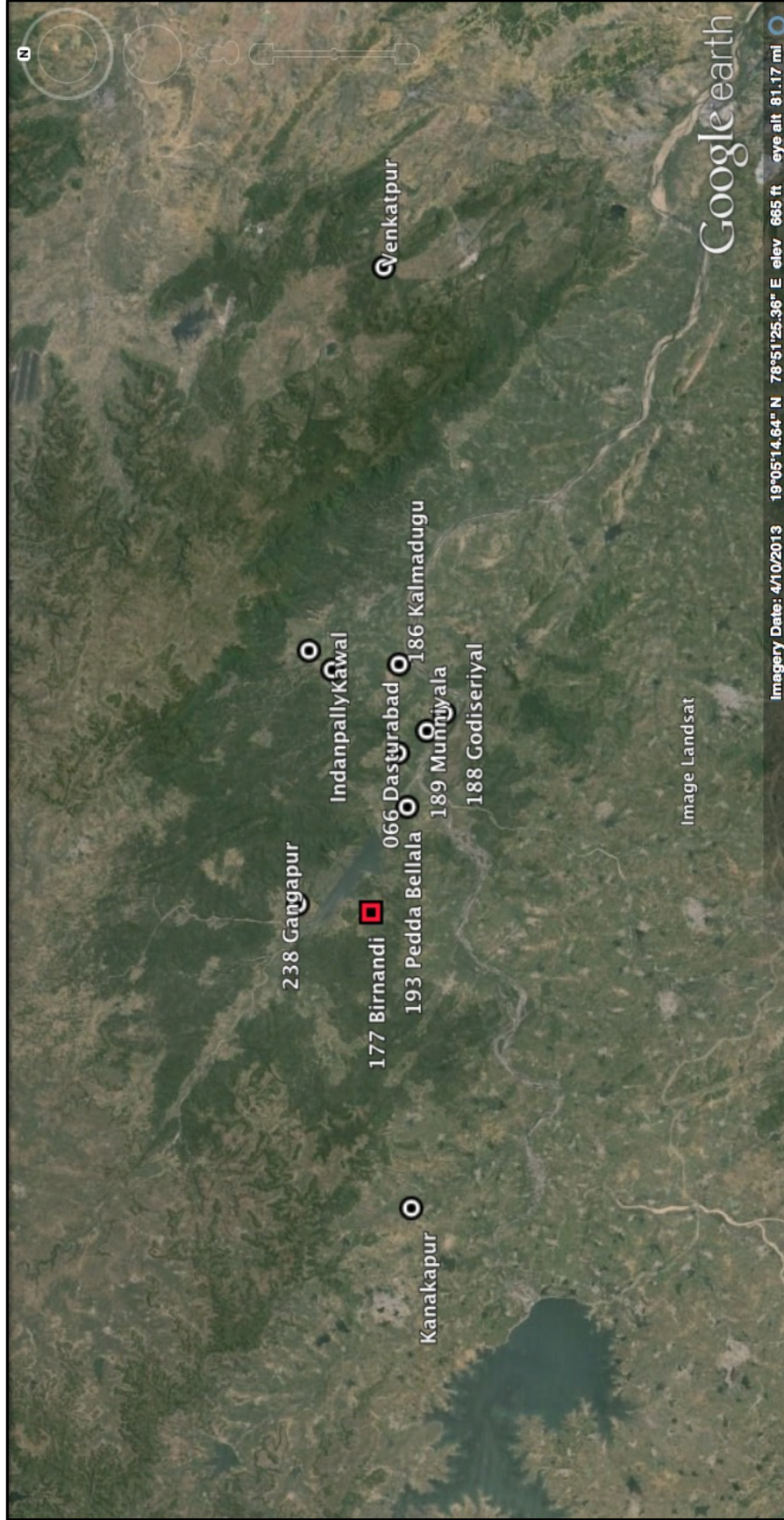
<b>Name of the Village</b>	<b>Surname</b>
Battapally	Chattlapally/Sattlapally
Kandlapally	Polasa
Dasturabad	Kuchanapally
Mangela	Polasa
Mudimadugu (location not established)	Kanchari/Kancharla/Kansarla
Munniyala	Yemnuri
Kammanoor	Polasa
Areppally	Polasa

Ramadugu of Somarpet was an original inhabitant of Dasturabad. The family moved to Somarpet 3-4 decades back due to lack of work in Dasturabad. They were invited by the peasants of Somarpet to relocate and forge agricultural implements for them. Kallipakas are native blacksmith family of Somarpet, but they were not smelters and they do not have any marital or other kin based relationship with the Ramadugu. Rajeshwar Kallipaka, the blacksmith I met in January 2014 had passed away when I was there again in March 2015, and therefore the Ramadugu brothers (Shankariah and Kondiah) are only remaining blacksmiths in the village. The Kallipakas have either taken to carpentry or moved out of the village in search of better income, outside their traditional trade.









**Map 8 Showing the villages with which Kuchanapally of Birnandi established marital relations**

**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Dasturabad	Ramadugu
Kawal	Ramudugu
Indanpally	Ramudugu
Kalmadugu	Desaradi
Venkatpur	Ramadugu
Gangapur	Atkapuram*
Kanakapur	Unknown
Godiseriyal	Kuchanpally (First cousin)
Munniyala	Yemnuri
Metachittapur (location not established)	Gadipalli*
Naleswaram (location not established)	Khatroji/Khatroju**
Pedda Bellala	Ulli

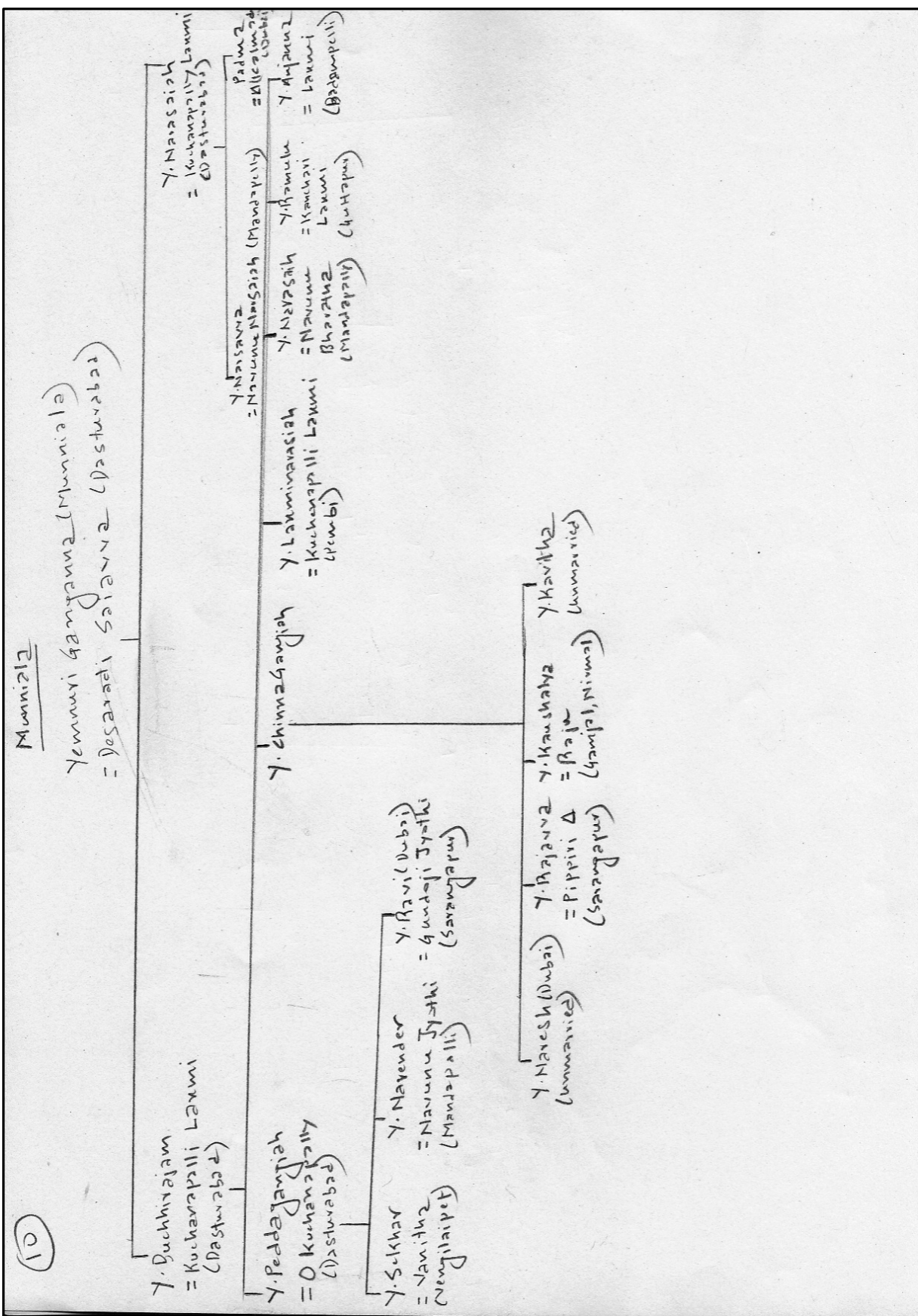
\*Not certain if these are Mudda Kammari surnames. They are blacksmith-carpenters.

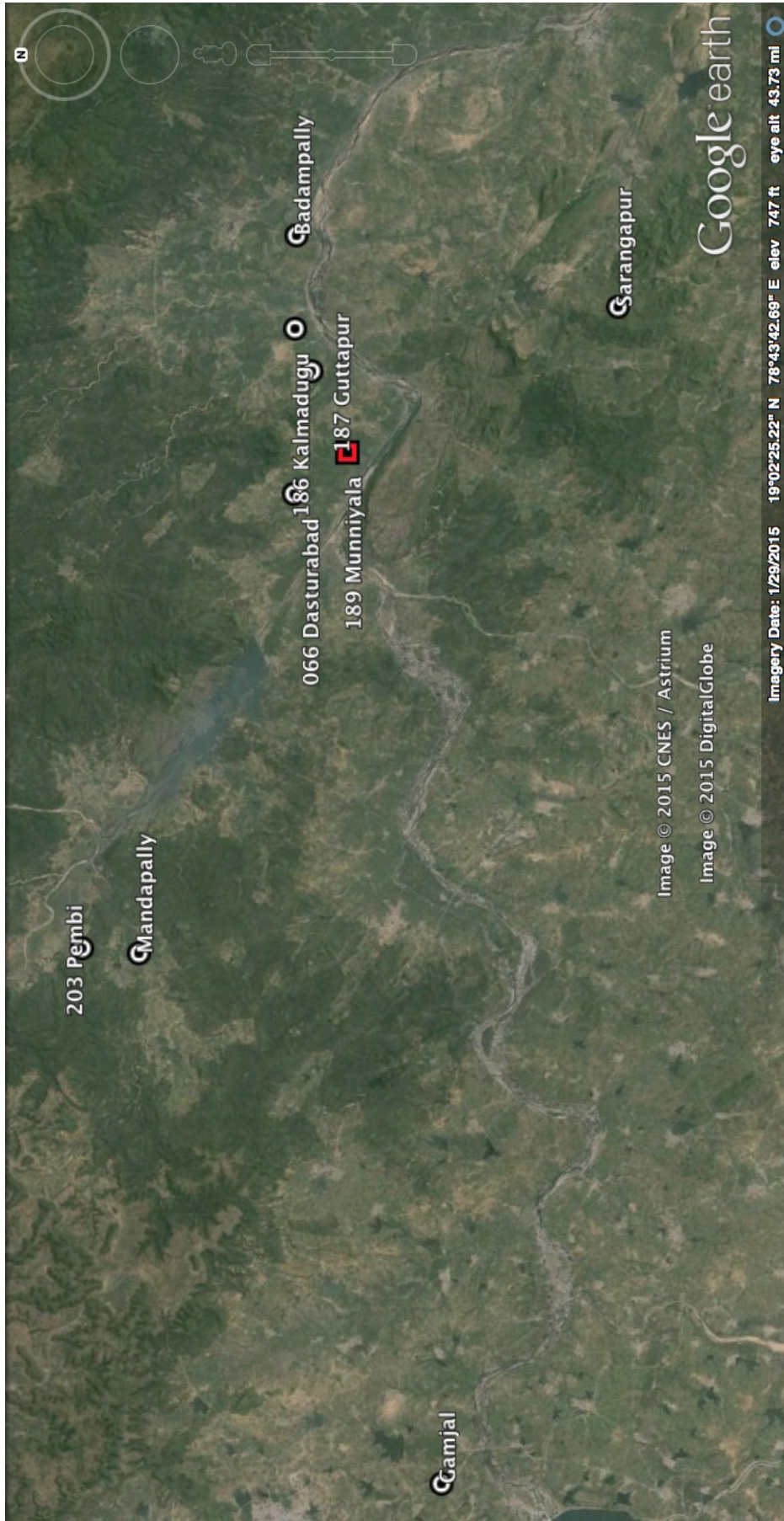
\*\*Khatroji/Khatroju like Sankoji/Sankuju are blacksmiths of Marathi origin, who had migrated and settled in parts of Adilabad and Nizamabad, since these are adjacent to Maharashtra border.

All others are Mudda Kammari surnames.



Chart 10: Yemnuri of Munniala





**Map 9 Showing the villages with which Yemnuri of Munniala established marital relations**



**List of surnames with which marital relations were established:**

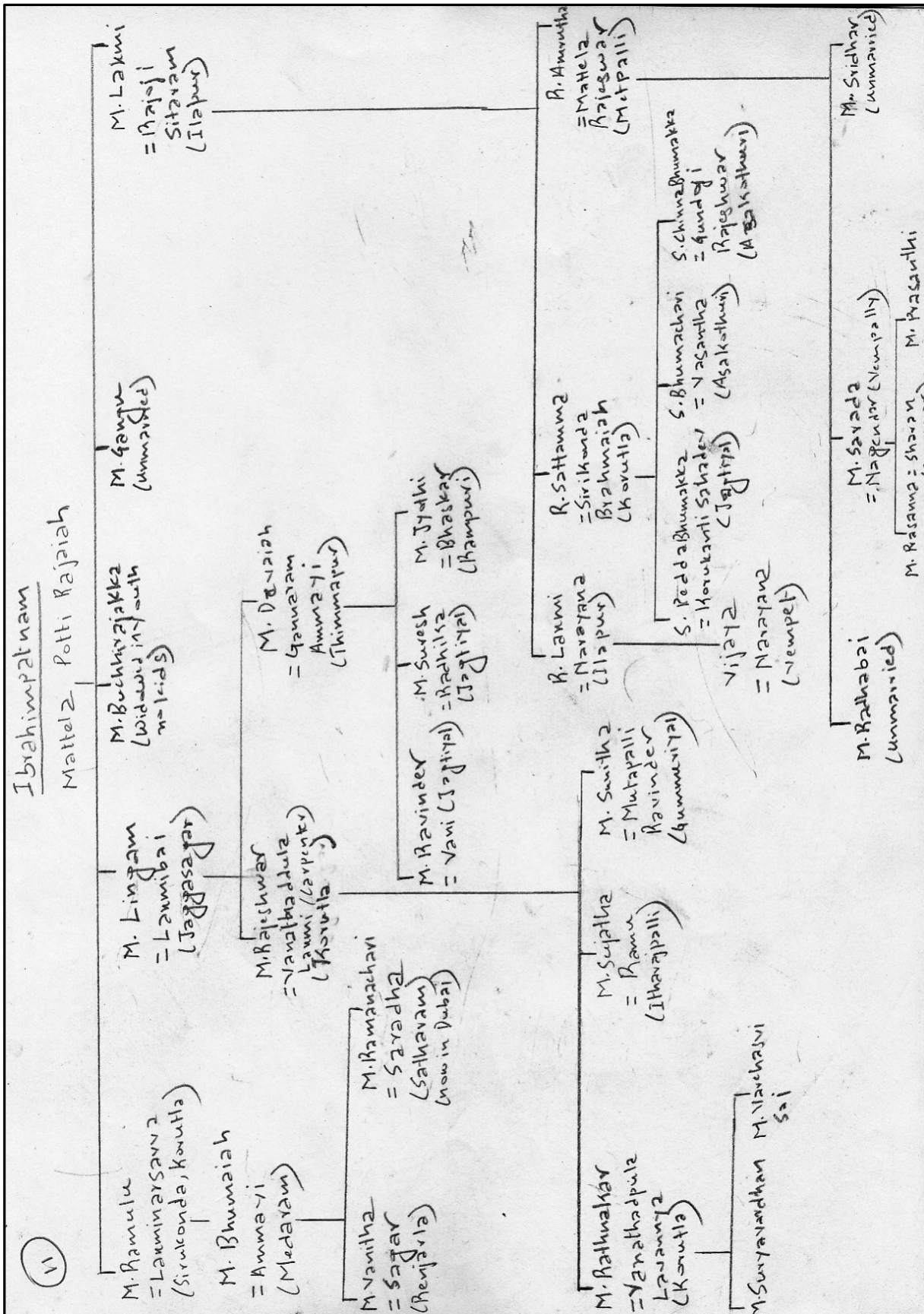
Name of the Village	Surname
Dasturabad	Desaradi & Kuchanapally
Mandapally	Navunu*
Kalmadugu	Desaradi
Pembi	Kuchanpally
Guttapur	Kanchari/Kancharla/Kansarla
Badampally	Unknown**
Sarangapur	Gundoji/Gundoju & Pippiri***
Vengilaipet (location not established)	Unknown**
Ganjam	Unknown**

\* This is the first time I came across this surname. I asked Yemnuri Pedda Gamgiah and his brother at Munniyala and they confirmed that this is a Mudda Kammari surname, but “now no difference exist”.

\*\* The interlocutors confirmed that they are Viswakarma Kammari families, but some of them have taken up full time carpentry due to lack of work as a blacksmith.

\*\*\* Gundoji/Gundoju, like Khatroji/Kharaju and Sankoji/Sankaju are blacksmiths of Marathi origin. Pippiri is a viswakarma surname but not certain if they were Mudda Kammari.

Other surnames are Mudda Kammari.



## Chart 11: Mattela of Ibrahimpattam





**Map 10 Showing the villages with which Mattela of Ibrahimpattam established marital relations**

**List of surnames with which marital relations were established:**

Name of the Village	Surname
Sirukonda (near Korutla)	Unknown (carpenter)
Jaggassagar	Unknown (carpenter/blacksmith)
Ilapoor/Ailapoor	Rajoji/Rajoju*
Medaram	Unknown (carpenter)
Renjarla	Unknown (carpenter/blacksmith)
Satharam (location not established)	Unknown (carepenter, now migrated in Dubai)
Korutla	Vanathadpula (carpenter); Sirikonda (blacksmith)
Thimmapur	Gannarapu/Gannaram (probably MK)
Jagtial	Korukanti (carpenter now works as teacher)
Rampuri (location not established)	Unknown (carpenter/blacksmith)
Ithrajally	Unknown (carpenter/blacksmith)
Metpalli	Mattela (first cousin)
Vempet	Unknown (carpenter)
Hasakothuri/Asakothuri	Gundoji/Gundoju*
Gumeriyal	Mutapalli (blacksmith)

\*Rajoji/Rajoju and Gundoji/Gundoju are Marathi immigrant blacksmith surnames.

Interlocutor Mattela Eajeswar was not able recall the maiden surnames of a lot of his kins' wives. However it is certain that the list of places and probably surnames with which marital relations are established are wider in scope and is not restricted to a small circle or profession as compared to the MK lists earlier.



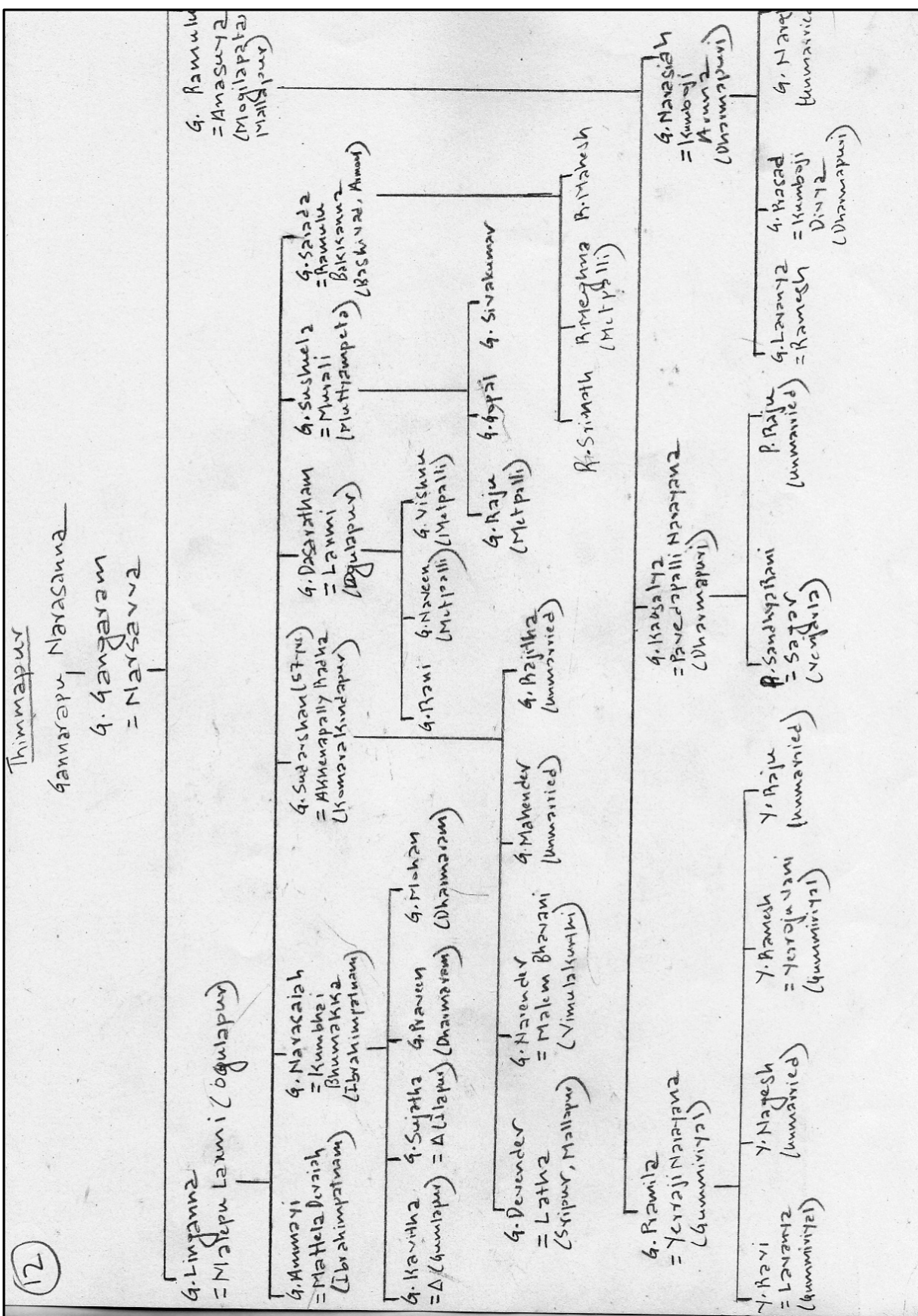
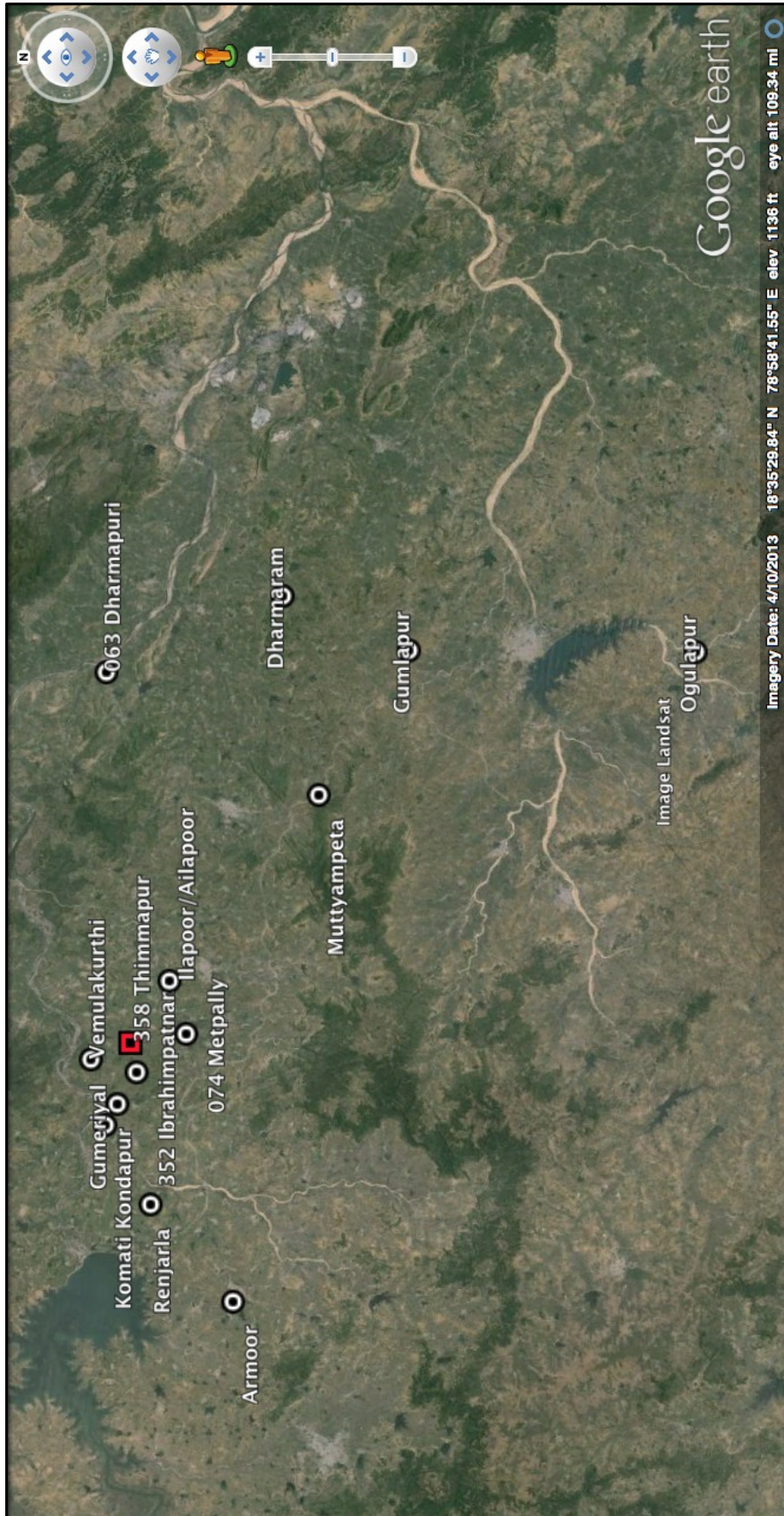


Chart 12: Gannarapu of Thimmapur/Timapur





**Map 11 Showing the villages with which Gannarapu of Thimmapur established marital relations**



**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Ogulapur	Malepu
Mogilipata (location not established)	Unknown
Ibrahimpattanam	Mattela (blacksmith, probably steel makers 3-4 generations back)
Komati Kondapur	Akkenapally (blacksmith, may be MK but not certain)
Muttyampeta	Unknown (carpenter)
Armoor	Ramulu (blacksmith/carpenter)
Gumlapur	Unknown (blacksmith/carpenter)
Ailapoor/Ilapoor	Rajoji/Rajoju*
Dharmaram	Gannarapu (branch of the same family migrated there)
Sripur (location not established)	Unknown
Vemulakurthi	Malem (blacksmith/carpenter)
Metpalli	Gannarapu (branch of the family migrated there)
Gummeriyal	Yerraji/Yerroju*
Dharmapuri	Pavedapally (carpenter) & Kumboji/Komboju*
Renjarla	Unknown (carpenter/blacksmith)

\*Rajoji/Rajoju, Yeraji/Yerroju and Kumboji/Kumboji are all Marathi migrant blacksmith families.

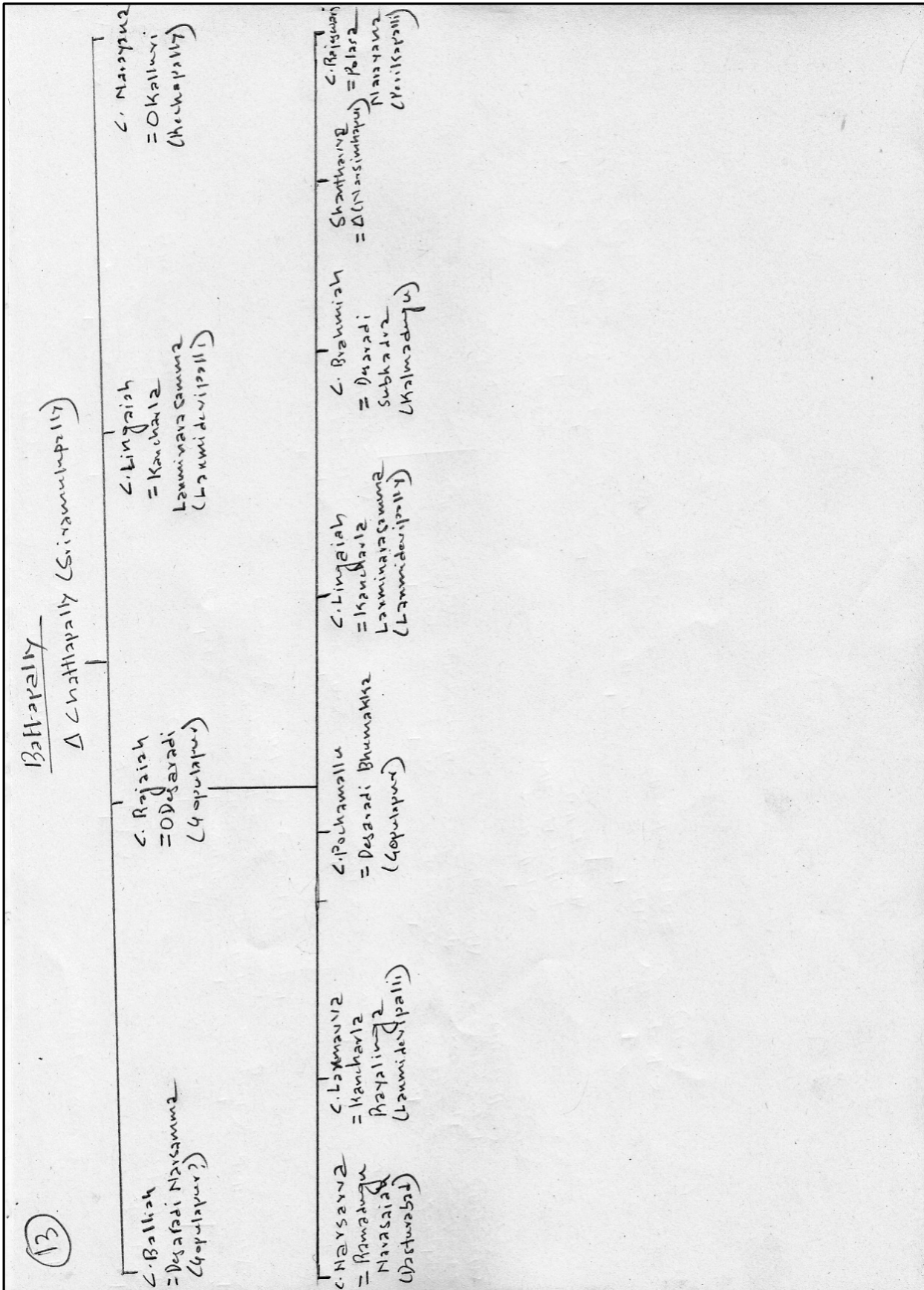
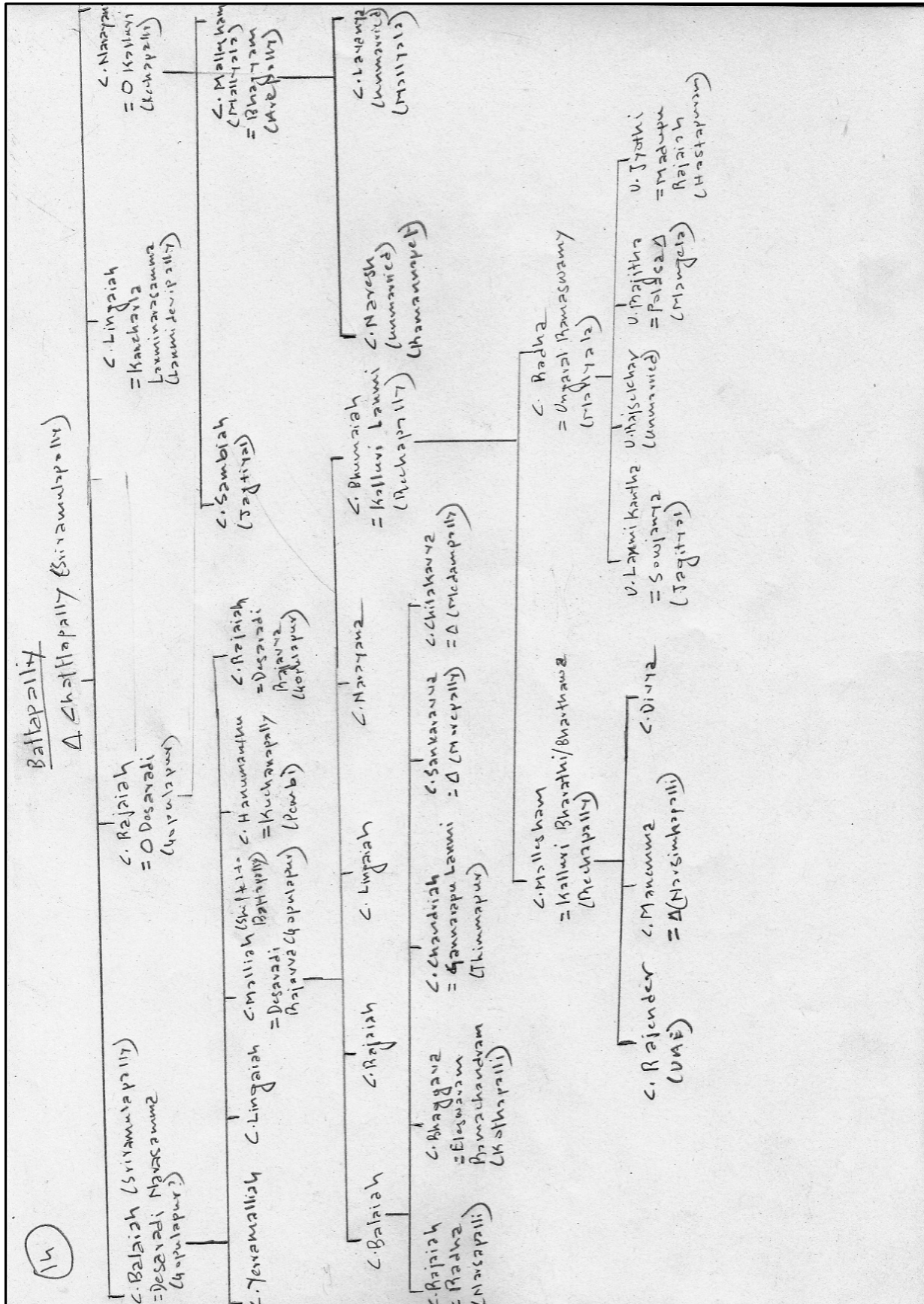


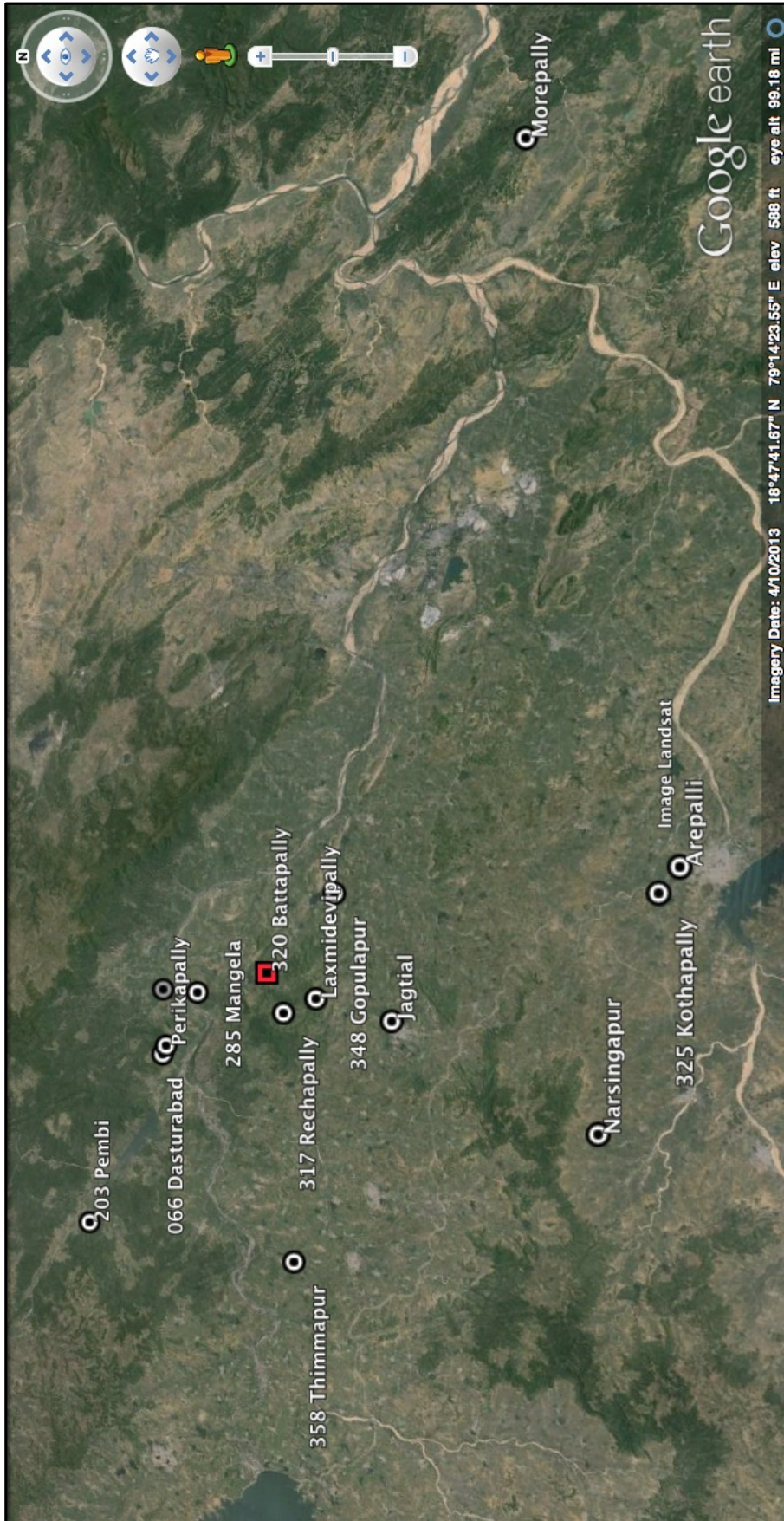
Chart 13A: Chattapally of Battapally





**Chart 13B:Chattapally (continued from 13A)**





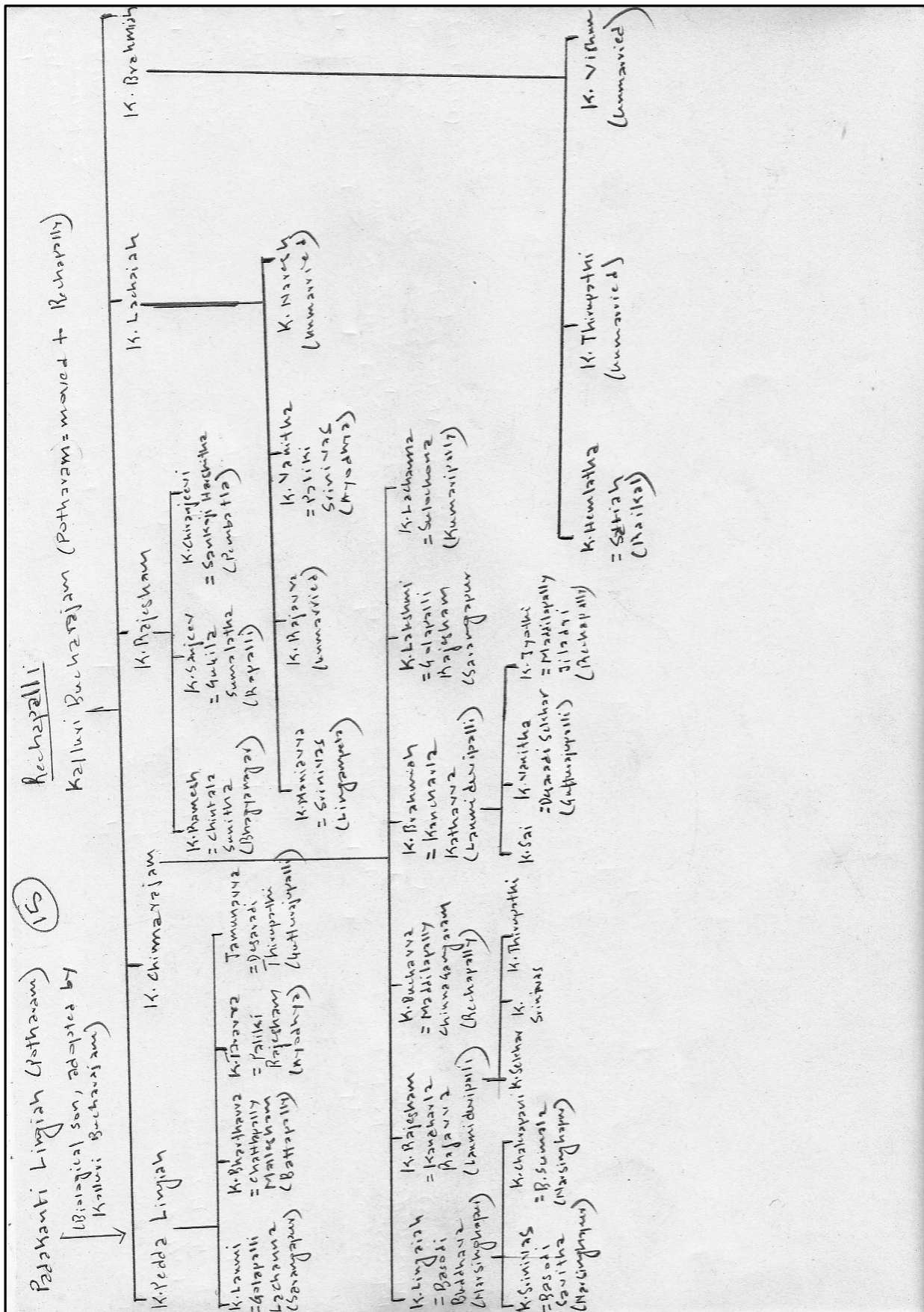
**Map 12 Showing the villages with which Chattapally established marital relations**

**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Gopulapur	Desaradi
Laxmidevipally	Kancharla/Kansarla/Kanchari
Rechapally	Kalluri
Dasturabad	Ramadugu
Kalmadugu	Desaradi
Narsingapur	Maddinapally/Maddilapally
Perikapally	Polasa
Pembi	Kuchanapally
Arepalli	Polasa
Mangela	Polasa
Kothapally	Eleswaram (normal blacksmith)
Morepally	Unknown
Mallyala	Ungaral (carpenter)
Jagtial	Unknown (bronze smith)

Most marriages are done within MK surnames. While there is just one occasion of wedding with Eleswaram, a normal Viswakarma blacksmith, and Ungaral, a carpenter, and done in the present generation, when MK identity does not have much force.





### Chart 14: Kalluri of Rechapally





**Map 13 Showing the villages with which Kalluri of Battapally established marital relations**

**List of surnames with which marital relations were established:**

<b>Name of the Village</b>	<b>Surname</b>
Sarangapur	Golapalli
Battapally	Chattlapally/Chattapally/Sattlapally
Ayodhya	Palliki
Gutturajupally (location not established)	Desaradi
Bhagyanagar (location not established)	Chintala
Rapally (location not established)	Gugila
Pembatla	Sankoji/Sankoju*
Lingampeta	Unknown
Narsingapur	Basodi & Maddilapally/Maddinapally
Laxmidevipally	Kancharla/Kansarla/Kanchari
Kummaripally	Unknown (Viswakarma blacksmith)
Raikal	Unknown (Viwakarma blacksmith)
Rechapally	Maddinapally/Maddilapally

\*Sankoji/Sankoju is a Marathi blacksmith surname.

Most among the rest of the surnames are *mudda kammari*. But some are from Viswakarma blacksmith family with whom marital relations are established in the present generation.

## APPENDIX 4

## DECLINING CLIENTELE OF THE KAMMARI

Here I will tabulate the declining numbers of clients among the *kammari* of northern Telangana. The numbers were collected during the ethnographic fieldwork of this project.

Names	Village	Earlier number of clients	Present number of clients	Notes (if any)
Kuchanapally Kondiah	Dasturabad	30	10	Mainly repairs
Kanoju Laxminarayana	Siddipet	50	0	Stopped smithing in 1995 when Siddipet became urbanized
Devarukonda Sayanna	Dhamannapeta	200	60	
Polasa Rajaiah	Nerella	75	50	Mainly forges toddy-tapping tools.
Sudarshan Medavaram	Shekallah	70	10	Repairs only
Jammikunta Murali	Maddunur	70	10	Repairs only as he works as a part time blacksmith and a fulltime carpenter

Golapalli Lachhanna	Maddunur	70	10	Repairs only as he works as a part time blacksmith and a fulltime carpenter
Kottapalli Laxmirajam	Sirukonda	50-60	20	Part time repairs only. The farmers have migrated to other villages
Kuchanapalli Narayana	Birnandi	30-35	20	
Ramadugu Shankaraiah	Somarpet	35	30	
Rajeshwar Kallipaka	Somarpet	NA	20	Has recently settled in the village
Rudroju Bhimalingam	Mallyala	45-50	0	Turned his smithy into a welding shop
Kanchari Buchharajam	Guttapur	35	0	Abandoned blacksmithing and currently runs a grocery store
Medavaram Ravi	Chityala	10	8	
Medavaram Swamy	Chityala	10	10	

Immadi Anandam & Muttyalu	Ayispur/Habsipur	15	40	Number of clients increased because all other <i>kammari</i> families migrated out of the village
Padakanti Venkatrajam	Madutla	40	25	
Katta Hanumanlu	Rebbanapally	40-50	6	
Katta Sudarshan	Rebbanapally	35-40	10	
Ramapally Venkatiah	Gudem	100	100	All clients are cotton farmers, therefore the payment is traditionally given in cash
Rangu Mogili	Kaspet	50	50	Majority are cotton farmers
Pulluri Shankariah	Rangasagara	50	50	Majority are cotton farmers
Polasa Rajiah	Mangela	45	45	There are 13 blacksmith families in the village with a

				very strong <i>kammari</i> sangam.
Ralabandi Sattiah	Kalleda	25	10-15	Mostly part time repair works
Bawanapally Kammari Bhumiah	Sangampally	60	0	Retired from blacksmithing due to lack of clients
Rajaram Swamy	Pembatla	30-40	5-6	
Chintala Venkataswamy	Arnakonda	200	0	Stopped blacksmithing in 2009 due to lack of clients
Nutti Bapu	Jangam	50	0	Stopped blacksmithing in 2003 due to lack of clients
Kalluri Ramesh and Sanjeev	Rechapally	100	20-35	Mostly part time repair work. They however, have some regular clients from the <i>Gond</i> tribal community

## GLOSSARY OF TERMS

<b>Telugu Term</b>	<b>English Translation</b>
<b><i>Amavasya</i></b>	New Moon Day
<b><i>Are Kammari/Shisha Kammari</i></b>	Itinerant tribal blacksmiths
<b><i>Are Vaisya</i></b>	Caste of businessmen and middlemen
<b><i>Auslolu</i></b>	Goldsmith/silversmith, one of the five craft groups in <i>Viswakarma</i> community
<b><i>Boggu</i></b>	Charcoal
<b><i>Brahmangaru</i></b>	Veera Brahmendra Swamy is sometimes referred in this name by the <i>Viswakarma</i> craft groups
<b><i>Chityam</i></b>	Slag
<b><i>Dadra</i></b>	A kind of iron digging stick used in agriculture
<b><i>Ellama</i></b>	Female patron deity of Toddy Tapper community ( <i>Gauda</i> )
<b><i>Gadaparalu</i></b>	Digging rod used in agriculture and construction
<b><i>Ganesh Chaturthi</i></b>	Principal annual festival of Ganesha, the Hindu deity of fortune
<b><i>Gauda</i></b>	Toddy Tapper community
<b><i>Godalu</i></b>	Axe



<b><i>Hanuman</i></b>	The Monkey God worshipped as patron deity by Telangana <i>Viswakarma</i> community
<b><i>Harijan</i></b>	Untouchables
<b><i>Jambu</i></b>	Weeding equipment made of iron
<b><i>Kammari</i></b>	Blacksmith, one of the five craft groups of <i>Viswakarma</i> community
<b><i>Kammulu</i></b>	Agricultural implement made of iron
<b><i>Kancharalu</i></b>	Bronze-/Copper-smith, one of the five craft groups of <i>Viswakarma</i> community
<b><i>Karlu/Karru</i></b>	Iron ploughshare
<b><i>Katti</i></b>	Iron knife
<b><i>Kattu</i></b>	Wood
<b><i>Kaushalu/Shilpi</i></b>	Sculptor/Stonemason, one of the five craft groups of <i>Viswakarma</i> community
<b><i>Khurpelu</i></b>	Iron spade used for agriculture
<b><i>Kodalu/Kodvalu/Kodvali</i></b>	Sickle
<b><i>Kolimi</i></b>	Furnace/hearth
<b><i>Konkallu</i></b>	Pickaxe
<b><i>Kuncha</i></b>	Telugu measurement, 1 <i>Kuncha</i> = 9Kg (approx.)
<b><i>Lambada/Lambadi</i></b>	Tribal community living in the forests of Central India

<b><i>Lappa</i></b>	Iron bar created from hammering the <i>mudda</i> during the refining process after smelting.
<b><i>Lukkulu</i></b>	Iron agricultural implement
<b><i>Madiga</i></b>	Low caste leather working community, made the bellows for smelting and blacksmithing, often treated as untouchables
<b><i>Mamayee</i></b>	Patron goddess of <i>Viswakarma</i> community
<b><i>Mudda</i></b>	Iron bloom/a lump of iron
<b><i>Mudda Kammari</i></b>	Sub-community of <i>Viswakarma</i> blacksmiths who were experts in iron-smelting
<b><i>Mulligatta</i></b>	Iron weeding implement
<b><i>Nagalu</i></b>	Iron implement used for cultivation
<b><i>Palgulu</i></b>	Iron implement used for harvesting crop
<b><i>Para/Paralu</i></b>	Iron digging stick
<b><i>Pedda Tittulu</i></b>	Big bellows
<b><i>Sahukar</i></b>	Middlemen who sold smelted iron bloom in the market after purchasing these from the smelters
<b><i>Sandra Kattu</i></b>	Wood of Sandra ( <i>Acacia Catechu</i> ) tree used for making charcoal for smelting

<b><i>Sangam</i></b>	Caste associations
<b><i>Sankranti</i></b>	Transmigration of the sun between constellations. According to Hindu mythology there are 12 <i>Sankrantis</i> in a year. The most auspicious one takes place in the middle of January, which corresponds with the first harvest of the agricultural year.
<b><i>Shivaratri</i></b>	Auspicious night in the late February/early March, dedicated to Shiva, one of the principal Hindu deities
<b><i>Tittulu</i></b>	Bellows
<b><i>Ugadi</i></b>	New Year's Day according to Telugu calendar
<b><i>Veera Brahmendra Swamy</i></b>	A 16 <sup>th</sup> Century saint who is worshipped as the patron saint of <i>Viswakarma</i> community in Telangana
<b><i>Viswabrahmin/Viswakarma</i></b>	Craft Community (Caste) consisting of blacksmiths, carpenters, bronze-/copper-smiths, sculptors/stonemasons and gold/silversmiths in Telangana and entire South India
<b><i>Wadlolu</i></b>	Carpenter, one of the five craft groups of <i>Viswakarma</i> community

***Wuske***

Sand, but in this thesis it is always referred to as black iron rich sandy sediment collected from the streambeds and used as ore for smelting in Telangana

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